ERIC REPORT RESUME

ED 010 259 2-28-67 24 (REV)

COMPARATIVE COSTS OF BOOK PROCESSING IN A PROCESSING CENTER, AND FIVE INDIVIDUAL LIBRARIES.

HENDRICKS, DONALD D.
GFF21308 UNIVERSITY OF ILLINOIS, COLL. OF LIB. SCI., URBANA

CRP-S-335
KUM37771 UNIVERSITY OF MICHIGAN, ANN ARBOR
BR-5-8179
- -66 OEC-5-10-384
EDRS PRICE MF-$0.45 HC-$11.44 286P.

*INFORMATION PROCESSING BOOKS, *PUBLIC LIBRARIES, *EXPENDITURES, COSTS, *LIBRARY EXPENDITURES, *LIBRARY SERVICES, COMPARATIVE ANALYSIS, INFORMATION SYSTEMS, COOPERATIVE PROGRAMS, LIBRARY SYSTEM, CHICAGO, ILLINOIS

THE COSTS OF TECHNICAL PROCESSING WITHIN A COOPERATIVE LIBRARY CENTER SERVING A NUMBER OF MEMBER LIBRARIES WERE COMPARED WITH COMBINED COSTS OF OTHER NONMEMBER INSTITUTIONS. IT WAS HYPOTHESIZED THAT THE COST PER MEMBER LIBRARY IN A CENTRALIZED SYSTEM FOR A GIVEN QUALITY OF TECHNICAL PROCESSING WOULD BE LESS THAN THE COST OF SIMILAR TECHNICAL PROCESSING PERFORMED BY OTHER INDIVIDUAL LIBRARIES, PRIMARILY BECAUSE CENTRALIZATION WOULD ELIMINATE DUPLICATION OF WORK AND STAFF. THE SPECIFIC CENTER STUDIED DURING THIS PROJECT WAS IN ITS FIRST YEAR OF OPERATION. A THOROUGH ANALYSIS OF THE CENTER'S ACTIVITIES SHOWED DIFFICULTIES THAT AROSE DURING THIS INITIAL PERIOD OF OPERATION AND THE REACTIONS OF ITS MEMBERS TO THE VARIOUS SERVICES PROVIDED. CENTRALIZED PROCESSING DID NOT EFFECT SAVINGS IN ALL CASES. NO MEMBER OF THE CENTER, HOWEVER, ADVOCATED A RETURN TO INDIVIDUAL LIBRARY PROCESSING METHODS. ABOVE ALL, THE CENTRALIZATION PROCESS OBTAINED A CONSISTENT LEVEL OF CATALOGING AND APPEARED TO ALLOW PROFESSIONALS IN THE MEMBER LIBRARIES MORE TIME FOR PUBLIC SERVICES. (JH)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

COMPARATIVE COSTS OF BOOK PROCESSING IN A PROCESSING CENTER AND FIVE INDIVIDUAL LIBRARIES

ED010259

BY

DONALD DUANE HENDRICKS

A.B., University of Michigan, 1954
A.M.L.S., University of Michigan, 1955

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Library Science
in the Graduate College of the
University of Illinois, 1966

Urbana, Illinois

ACKNOWLEDGEMENTS

The research reported herein was performed pursuant to a contract with the United States Department of Health, Education, and Welfare, Office of Education, under the provisions of the Cooperative Research Program.

A large number of individuals have aided in various phases of this thesis, and to all of them the writer wishes to express sincere gratitude.

A special note of appreciation is expressed to Dr. Herbert Goldhor, under whose guidance the study was originally outlined, and who provided valuable counsel as director of the doctoral committee. Sincere thanks are also due the other committee members: Dean Robert B. Downs, Dr. Harold Goldstein, Dr. Ray H. Simpson, and Dr. Rolland Stevens.

A vast amount of help was received from librarians in the field as the writer spent several days at each library and was accorded gracious hospitality. Included in this group are Mr. Lester Stoffel, Mrs. Kathryn Gesterfield, Mrs. Amie Martin, Mrs. Lillian O'Boyle, Miss Leona H. Ringering, Mrs. Eva Shively, Mr. Alden Wilson, and Mr. Louis Klitzke. During these visits various staff members, too numerous to mention by name, gave generously of their time as necessary data were collected. Their help is gratefully acknowledged.

The writer has enjoyed the facilities of the Library Research Center in the University of Illinois Graduate School of Library Science, and the guidance of the Center's director, Dr. Guy Garrison. It was through cooperation with this office that the writer was able to obtain a Small Contract Grant from the U. S. Office of Education to support this research. Colleagues in the Library Research Center were helpful and encouraging, and special appreciation is expressed to Mrs. Marie Long for helpful criticism, Mr. James Krikelas for help in statistical matters, and Mrs. La Verne Caroline for her aid in preparation of the manuscript. Special thanks are also due to Dr. H. W. Norton, Department of Animal Science of the University of Illinois, for his help in statistical design.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS iii

LIST OF TABLES viii

LIST OF ILLUSTRATIONS x

CHAPTER

I. BACKGROUND AND DESCRIPTION OF THE STUDY . . . 1

Library Cooperation 1
Centralized Processing as a Form of Library Cooperation 4
Scientific Method Used to Gather Data . . . 15

II. SURVEY OF RELATED RESEARCH 22

Library Cost Studies to 1950 23
Cost Accounting and Cost Studies 25
Time and Motion Studies 32
Centralized Processing 36

III. METHODOLOGY 44

The Center 45
Member Libraries 46
Non-member Libraries 48
Collection of Data 54
Statistical Measures 59

IV. THE PROCESSING CENTER 63
Description of the Center's Processes . . . 69
Difficulties in Operation 72
Corrective Steps Taken 79
Costs of the Center's Processing 83

V. DEVELOPMENTS IN MEMBER LIBRARIES 90

Visits to Member Libraries 90
Spatial Aspects 97
Telephone Survey of Member Libraries . . . 99
Summary of Questionnaire 111

CHAPTER Page

VI. DESCRIPTION OF PROCESSING PROCEDURES: TIMES AND COSTS IN NON-MEMBER LIBRARIES . . 114

Explanation of Terms Used 128
Library One 129
Library Two 144
Library Three 154
Library Four 166
Library Five 179
Comparison of Times and Costs Over All Libraries 190

VII. CHARACTERISTICS AND DUPLICATION OF CATALOGING IN NON-MEMBER LIBRARIES 197

Duplication of Cataloging 197
Characteristics of Cataloging 200

VIII. CONCLUSIONS 212

Timing of the Study 214
Levels of Cataloging 215
Omission of Overhead Charges for Non-member Libraries 217
Cost per Volume from the Center 218
The Local Labor Supply 222
Types of Original Cataloging Done 222
Costs Compared with Other Studies 224
Processing for School Libraries 226
Centralized Cataloging Vs. Centralized Processing 227
A National System of Processing Centers 230
Summary 232

BIBLIOGRAPHY 235

APPENDIX A--Time Data Sheet 247

APPENDIX B--Explanation of Time-Data Sheet 248

APPENDIX C--Observed Data, Library 1 249

APPENDIX D--Observed Data, Library 2 253

APPENDIX E--Observed Data, Library 3 256

APPENDIX F--Observed Data, Library 4 260

Page

APPENDIX G--Observed Data, Library 5 264

APPENDIX H--Quantification of Detail on Catalog Cards 267

VITA 273

LIST OF TABLES

Table Page

1. Ranking of Member Libraries 51
2. Comparison of Four Averages: Member and Non-member Libraries 52
3. Rankings of Independent Libraries Chosen for Study 53
4. Cost Data, Independent Oak Park Processing Center 84
5. Cost per Book at Various Production Rates and Number of Employees 86
6. Library One--Summary of Times Used to Perform Activities 138
7. Library One--Comparison of Times Recorded by Library Staff and by the Investigator . . . 139
8. Library One--Summary of Costs per Activity. . 140
9. Library Two--Summary of Times Used to Perform Activities 150
10. Library Two--Comparison of Times Recorded by Library Staff and by the Investigator . . . 151
11. Library Two--Summary of Costs per Activity. . 152
12. Library Three--Summary of Times Used to Perform Activities 161
13. Library Three--Comparison of Times Recorded by Library Staff and by the Investigator. . 162
14. Library Three--Summary of Costs per Activity. 163
15. Library Four--Summary of Times Used to Perform Activities 174
16. Library Four--Comparison of Times Recorded by Library Staff and by the Investigator . . . 175
17. Library Four--Summary of Costs per Activity . 176

Table Page

18. Library Five--Summary of Times Used to Perform Activities 185

19. Library Five--Comparison of Times Recorded by Library Staff and by the Investigator 186

20. Library Five--Summary of Costs per Activity. . . 187

21. Division of Professional and Non-professional Time 191

22. Summary of Times and Costs for All Libraries 192

23. Overall Time Comparisons in Seconds 193

24. Observed Data Compared with Data Reported in the Literature: Pasting Pockets 195

25. Titles in Booklist (October 1, 1964) Held in Common by the Five Non-member Libraries . . . 198

LIST OF ILLUSTRATIONS

Figure

Page

1. Letter and Questionnaire to Member Libraries 103
2. Definitions of Activities in Processing 116
3. Comparison of Cataloging; Main Entries for Two Titles 201
4. Comparison of Cataloging; Main Entries for Two Novels 202
5. Comparison of Cataloging; Main Entries for Three Titles 204
6. Comparison of Cataloging; Main Entries for Three Titles 205
7. Comparison of Cataloging; Main Entries for Two Novels 208
8. Comparison of Cataloging; Randomly Selected Titles 209

Chart

1. Processing Center, Flow Chart 70
2. Library One, Flow Chart 132
3. Library Two, Flow Chart 146
4. Library Three, Flow Chart 156
5. Library Four, Flow Chart 169
6. Library Five, Flow Chart 181

CHAPTER I

BACKGROUND AND DESCRIPTION OF THE STUDY

If one were to list the important library trends in the past decade, library cooperation would certainly be near the top. National and state library plans, professional literature, and professional association activities and committees have stimulated and encouraged cooperative developments, from simplifying the loans of material between libraries to the formation of highly complex legal entities.

Library Cooperation

An essential characteristic of libraries is the basic ingredient of cooperation. No matter what clientele a library serves, it exists to provide a greater number of resources for information or other uses than the individual himself could assemble. The librarian serves as a cooperator, in that he assists the individual who has recourse to this assemblage. In the past, the information seeker, failing in an attempt to locate his answer or fulfill his needs at his local library or first level of inquiry often had no alternative but to adjust to his disappointment.

Traditionally libraries have tried a number of things to avoid this user frustration:

> but it was a case of much talk and little action. . . . Public libraries operate under two well-recognized conditions: 1) a person's library needs are in no way related to the size of his home community; the student, teacher, and engineer need precisely the same books whether they reside in a large city or small town; and 2) the small, independent library, which must rely upon its own resources, cannot supply these books.[1]

A list of past and present cooperative efforts would be all too familiar to students of librarianship; the attempts to cooperate range from interlibrary loan of material to interstate compacts and other complicated legal and extralegal agreements.

The contemporary concern with cooperative aspects of the library world has been stimulated by several acute problems. The shortage of professional personnel, the increase in publications and their costs, societal emphasis on research, space limitations in institutions,[2] all have had their impact.

These factors have encouraged librarians to overthrow inertia and seek solutions to their service problems by looking across their legal or natural boundaries of office and exploring cooperative measures to alleviate these common problems by working together. Thus librarians hope to rise above their financial and other inherent restrictions and provide a kind of service which will ensure that the user is ultimately successful.

---

[1] Ralph Munn, "Planning for Cooperation," ALA Bulletin, LVIII (June, 1964), 496.

[2] *Ibid*., p. 497.

The major benefits of general library cooperation have been implied many times, but Keyes D. Metcalf and Ralph T. Esterquest have set down precise inventories of what these might be. Some of these items are parallel, but are stated in terms that may throw additional light on the concepts. Metcalf says cooperation attempts to insure that:

1) Any recorded information is available to a user, by means of interlibrary loan or photocopy.
2) Access to this information is provided, so that the user can locate the desired material.
3) Needless duplication of infrequently used materials is prevented. This implies savings in the costs of processing and storing such items.
4) There will be an increase in the nation's total library resources without correspondingly increasing library expenditures.[3]

Esterquest stated the advantages of cooperation to be the increased efficiency in the physical housing of library materials--for instance, by means of centralized or decentralized storage; increased efficiency of access--for instance, through the use of devices for rapid transmission of facsimilies; increased collective resources--for instance, by area agreements for specialization; increased efficiency of library operations--for instance through co-operative cataloging arrangements.[4]

---

[3] Keyes D. Metcalf, "General Problems," Library Trends, VI (Jan., 1958), 271.

Cooperative efforts may result in larger units of service, which seem to:

> provide the organizational structure and financial base necessary to provide quality public library service, consistent with economy, throughout the entire United States.[5]

These, then, are the major goals of cooperative ventures: implicit within these statements are the resultant savings of personnel time at all levels.

Within the framework of the preceeding discussion concerning the benefits that accrue via cooperative efforts, several references have been made to cooperative or centralized processing, and a general discussion of this aspect of cooperation, the subject of this study, may proceed from that background.

Centralized Processing as a Form of Library Cooperation

Interest in centralized processing as one phase of library cooperation has long preceded the recent attention focused on the larger term. For a variety of reasons, however, centralized cataloging and processing failed to achieve a dynamic status until the proper stimuli could be engaged. The major stimulus in overcoming inert forces with regards to cooperative processing has been the provision of funds. James R. Hunt, in tracing the historical development of processing centers in the United States, notes that the prototype for such operations has existed for decades in large universities, municipal and county libraries, and asks:

---

[4] Ralph T. Esterquest, "Co-operation in Library Services," in Lester Asheim, ed., Persistent Issues in American Librarianship (Chicago: University of Chicago Press, 1961), p. 72.

[5] John G. Lorenz and Rose Vainstein, "Emerging Patterns of Library Organization" in Roberta Bowler, ed., Local Public Library Administration (Chicago: The International City Managers' Association, 1964), p. 26.

> But why did these new centers appear so quickly? Certainly catalogers and administrators had seen the necessity for, and dreamed of, centralized mechanisms for many years, indeed, many decades, but what forceful ingredient was lacking in many instances to make their dreams a reality? What element was needed to trigger their quantitative beginning and still sustains their phenomenal growth? Money.[6]

Carma R. Leigh, reviewing the past for the annual conference of the California Library Association in 1955, found that the annual meeting of 35 years earlier had the same theme of "Library Cooperation" as its focus, and she notes:

> The discouraging thing was that there had been few outstanding accomplishments in the intervening years. Many feeble attempts at cooperation had been made, but, without funds to support the expenses of establishing cooperative enterprises and some continuing money to maintain the structure of functional consolidation or cooperation. These attempts

---

[6] James R. Hunt, "The Historical Development of Processing Centers in the United States," Library Resources & Technical Services, VIII (Winter, 1964), 55.

> had had little influence on the organization and level of service.[7]

It seems that no matter how well a cause may be endowed with theoretical advantages and backed by the enthusiasm of librarians, it takes more than moral sustenance to establish a complicated and continuing activity such as centralized processing.

The stimulus which resulted in the explosion and proliferation of processing centers on the American library scene was the passage of the Library Services Act.[8,9] Again, Leigh presents a succinct example of the effect of this Act:

> An earlier workshop on the mechanics of library cooperation produced the beginnings of a plan for a centralized processing center. Libraries in northeastern California were interested, would have cooperated immediately, but there were no funds for setting it up. Years of talk and no action intervened, but when the Library Services Act was passed, the plans came to life and reality, and through much tribulation and experimentation, there is now a working Processing Center, beginning now to be partially supported by

---

[7] Carma R. Leigh, "LSA and the Development of Library Systems," in Donald E. Strout, ed., The Impact of the Library Services Act: Progress and Potential ("Allerton Park Institute," no. 8; Urbana, Ill., University of Illinois, Graduate School of Library Science, 1962), p. 58.

[8] U. S. Statutes at Large, LXX, 84th Congress, 2nd Session, 1956, p. 293.

[9] Dorothy Bendix, "Regional Processing for Public Libraries, A Survey," Library Resources & Technical Services, II (Summer, 1958), 155-70.

> the 20 libraries in the 12 or so counties it serves, with prospect of complete local support ahead.[10]

Nowhere is there more convincing evidence of the impact of LSA funds on centralized processing than in the state plans themselves.[11] Each state progress report since the passage of the Act in 1956 testifies to the pattern of broad cooperative developments and centralized processing in particular. The introduction to the most recent report states the philosophy underlying and guiding such developments:

> One of the major activities of a library that lends itself most readily to cooperative accomplishment is the acquisition of materials and their preparation for use. Usually termed "centralized processing," this function may include such operations as book ordering, cataloging, classification, catalog card duplication, preparation of book cards and pockets, lettering the spine, and applying a plastic jacket. It is obviously repetitious for every independent library to do all of these routine operations separately even if each had trained staff and unlimited time. By centralizing these tasks, many LSA projects may have been able to obtain a volume of work which makes the use of mass production methods economically feasible.[12]

Hawthorne Daniel points out how the stimulus of Federal funds became channeled in these directions:

---

[10] Leigh, _op_. _cit_., p. 59.

[11] Louise Marion Moshier, _State Plans Under the Library Services Act_ (Washington, D. C.: U. S. Office of Education, 1958; Supplement 1, 1959, Supplement 2, 1960, Supplement 3, 1963).

[12] _Ibid_., Supplement 3, p. 10.

> Independent though most of the local libraries were, they were influenced by the Library Services Act to look to their state library agencies for direction. The state agencies, too, though they also retained their independence, were required to report to the Library Services Branch in Washington. Here, therefore, a process developed which, originating in the American Library Association and carried on largely by way of nothing more than mere correspondence and indirection, somewhat naturally tended to establish methods and standards that extended even beyond the areas that were covered by the written regulations . . . plans were offered that included the creation of larger and more economical rural library administration units, the establishment or expansion of bookmobile services, and the development of central purchasing and processing services, with the idea of conserving the funds of small--and especially rural--libraries.[13]

Centralization of technical processing functions was certainly implemented by Federal funds, as has been documented in many places,[14] but those monies were not the only goal. The library profession had subscribed to national standards for service as proposed by the American Library Association.[15] In discussing the "Concept of Library Systems," the standards are emphatic in their statement,[16] "*These standards are for systems of library service*," (italics theirs) and within the section dealing with "The Organization and Control of Materials," the standards are explicit upon this point:

---

[13] Hawthorne Daniel, Public Libraries for Everyone: The Growth and Development of Library Services in the United States, Especially Since the Passage of the Library Services Act. (Garden City, N. Y.: Doubleday, 1961), p. 63.

[14] Evelyn Day Mullen, "Regional Processing for Public Libraries," Library Resources & Technical Services, V (Winter, 1961), 34-36.

[15] American Library Association, Public Libraries Division. Public Library Service: A Guide to Evaluation with Minimum Standards. (Chicago: American Library Association, 1956).

> Co-operation or centralization should be sought wherever possible in organizing materials. A cornerstone of the library system as defined in previous chapters is centralizing the organization of materials. Even for libraries not legally affiliated a system of co-operative work can often be evolved.[17]

The statement continues by discussing the types and advantages of cooperation.

It seems obvious then, that the passage of the Library Services Act and the publication of the standards, both coming in the same year, were two great motivating forces back of the successful growth of processing centers.

Advantages of centralized processing.--There is an assumption in this trend of current library practice that these larger units of service automatically lead to a variety of benefits. One facet of the "larger unit of service" concept is that of centralized technical processing.[18] A superficial glance at this area lends weight to arguments advanced by the advocates of this type of cooperation. A book is written once, published once, but cataloged many times. There are approximately 6,141 public libraries in the United States,[19] and except for a few libraries that are experimenting with centralized processing, most duplicate each other in the preparation of books for use by the public. Any reduction in this repetition would seem a move toward economy.

---

[16] *Ibid*., p. 9.

[17] *Ibid*., p. 55.

[18] Technical processing is defined throughout the study as the steps involved in acquiring and preparing library materials for the shelves: centralized technical processing is defined as any part of the whole range of technical services which a group of libraries arranges to have provided by some one agency.

There is one other trend in the library art that has a bearing on the acceptability of the product of centralized processing. As Wheeler and Goldhor point out:

> Conditions in today's libraries challenge some traditional cataloging dogmas and assumptions. The long-term shortage of catalogers, and the rise in salary costs, make inevitable an acceptance, by administrators, staff members and patrons, of a less meticulous standard of completeness, rigid consistency or accuracy as to secondary details. . . . Rather than to prepare against every theoretical bibliographic need, the more useful approach to cataloging for the typical public library is to relate operations and details to frequently demonstrated reader needs and develop an efficient finding list rather than a bibliographical tool.[20]

This statement seems especially appropriate when we consider how little is known about the needs of the user, as shown by catalog use studies.[21] Frarey's summary has shown that the subject catalog is used chiefly (a) as a directory to shelf location, and (b) to select one or more suitable books on the subject of interest.[22] Cox points out that centralization of cataloging must automatically lead to:

---

[19] American Library Directory (24th ed.; New York: R. R. Bowker Co., 1964), p. ix.

[20] Joseph L. Wheeler and Herbert Goldhor, Practical Administration of Public Libraries (New York: Harper, 1962), p. 498.

> some loss of local control of subject approach.except perhaps in fields of special interest. In the smaller public library, with a high percentage of popular books, this is probably not the serious problem it could be in the larger library.[23]

With the great dearth of public librarians in the country, estimated at well over 10,000,[24] and the particularly acute shortage of qualified catalogers,[25] it is only fitting that librarians seek new ways of incorporating materials into their collections. The Association of Research Libraries is making a concerted effort to develop a program of shared or cooperative cataloging in order to keep abreast of the rising tide of research materials.[26] If the largest and most highly specialized libraries of the nation feel that this type of cooperation is an aid to easing cataloging delays, then it certainly can be argued that public libraries, whose purchases can be assumed to be duplicated to a greater degree, can benefit from cooperative processing.

---

[21] Carlyle J. Frarey, "Subject Headings," _in_ Ralph R. Shaw, ed., _The State of the Library Art_, v. 1, part 2., (New Brunswick, N. J.: Rutgers University Press, 1960), p. 11.

[22] _Ibid._, p. 23.

[23] Carl R. Cox, "Centralized and Cooperative Cataloging," _News Notes of California Libraries_, L (April, 1955), 357.

[24] _The Bowker Annual of Library and Book Trade Information_ (New York: R. R. Bowker Co., 1965), p. 23.

[25] Donald E. Strout and Ruth B. Strout, "Sixty-one Forty-five in Nineteen Sixty-four," _Library Journal_, XC (June 15, 1965), 2747.

"Greatest shortages. . . . The type of work most often indicated was 'technical services' . . . or more specifically, cataloging. . . ."

The specific gains of centralized processing are seen as:

> 1) advantages in purchasing books (higher discount, more consideration by the dealer, approval and return privileges, etc.); 2) economy for all in eliminating duplication of tasks (e.g., cataloging the same title but once for many libraries); 3) availability of needed bibliographic and professional tools (too expensive for each library to have); 4) assurance of having the work done expertly and uniformly (thus aiding the user going from library to library); 5) advantageous buying of supplies in large lots; 6) saving time and labor by utilizing machinery, equipment, and physical space too expensive for individual libraries; 7) better development and training of personnel and providing staff specialization and promotional opportunities in the work; 8) elimination of duplicate records, such as authority files; and 9) installation of better work planning and management.[27]

Carl Cox has listed two additional advantages in the freeing of general librarians for other fields of library work, and the possibility, through a union catalog and interlibrary loan arrangements, of making the total resources of the system available to each member, thus increasing materially the breadth of any individual collection in the system while also allowing reduction of duplication.[28]

---

[26] Association of Research Libraries. Minutes (Washington, D. C.: The Association, June, 1964 to date).

[27] Esther J. Piercy, "Organization and Control of Materials," in Roberta Bowler, ed., Local Public Library Administration (Chicago: The International City Managers' Association, 1964), p. 199.

The latter statement is an excellent example of how the goals of centralized processing can merge with the purposes of general library cooperation.

Disadvantages of centralized processing.--When an attempt is made to assess the economic value of centralized processing, there are several theoretical factors that tend to balance the optimistic view. First, any processing center must deal with a disparate group of libraries and there is the question of the center's ability to satisfy the varying requirements of these libraries. The most important phase of this question concerns the depth of cataloging. Will the uniformity and simplicity that must be introduced to make feasible the rapid handling of materials cheapen the cataloging product? If so, are the economies introduced by centralization negated by the changes in the product that are made by subscribing libraries? As Cox states in speaking about the disadvantages of centralized processing:

> . . . the major one is probably that of attempting to adapt the centralized cataloging to the needs of participating libraries which have many variations in their existing systems. This difficulty can only be overcome by

---

[28] Cox, op. cit., p. 357.

> developing a cataloging code which will be accepted as standard through the entire system. . . . Any attempts to doctor the cards received from the centralized agency will prove more costly from the standpoint of the cooperating library and may well defeat the plan eventually. . . . Another potential disadvantage is the allocation of a proper percentage of the individual library's budget for what is essentially a service.[29]

Then, centralization imposes an intermediate step in the book ordering process, with libraries ordering through the processing center rather than directly from a jobber. Will the delay thus introduced lessen the economic benefits? Public libraries, unlike research institutions, depend on their ability to furnish current materials to their clients, the taxpayers. This ability, an accepted sign of efficient operation, plays a large role in any request for additional operating funds. Yet another consideration is that most beginning centralized systems have been subsidized by grants from the Federal Library Services Act or from foundations. There is some doubt that a center could begin, or maintain operation, without outside assistance. If such aid were withdrawn, could these centers continue to operate?

In concluding Cox says:

> Summing up, then, the paramount motive for centralized and cooperative cataloging is economic, and any plan likely to succeed must in the long run be less expensive than individual library cataloging. Costs must be very carefully weighed before commitment to such a

---

[29] *Ibid.*, p. 357-58.

> plan. The product must be of high quality, for an inferior product spells failure for the program. Cooperative cataloging must produce entries as quickly as they may be produced otherwise, if dissatisfaction is not to result.[30]

Although Cox states the economic aspect is the "paramount motive" in centralized technical services, one must speculate on the weight of the other factors. If the cost of the service was equal or even slightly higher than that of the individual library, would not the potential benefits of released time, greater discounts, increased space for other purposes and the possibility of a better level of cataloging tend to offset the purely economic motive?

Scientific Method Used to Gather Data

The foregoing are some of the questions that this study, using a scientific approach, attempts to answer. This investigator became interested in library cooperation while employed as head librarian in a small liberal arts college. It seemed that there were many ways in which small college libraries could assist each other, but little is known about the comparative costs of such endeavors as cooperative book-buying and technical processing. It was felt that a comparative cost study should be conducted in an area where processing centers already existed, that of the public library field. A valid cost analysis and clarification of the problems involved may be helpful in other types of libraries which need to make decisions and want background data on which to base them.

---

[30] *Ibid.*, p. 358.

The ultimate decision in joining a cooperative program is a management responsibility and it will always involve in part some discretionary judgment. The reason is that quantitative analysis of the relative worth of alternatives cannot possibly take into account all of the elements involved. This is so because some factors can not be quantitatively determined with accuracy (such as, quality of cataloging and time factors introduced into the process), because some aspects involve an element of uncertainty (such as public reaction to any delay), and because some of the relationships involved are so complex that a quantitative determination of all of the influences of any given decision would sometimes be impractical. Another reason it is difficult to make decisions based only upon available facts is that of the obscurity of future developments and trends. A library manager in the throes of a contemporary decision on the advisability of joining a cooperative book processing center can only speculate on the impact that the proposed national library system might have upon his library. If the state in which the library operates has not yet adopted a state plan, the librarian can only conjecture upon the direction that development may assume. Again, the Library Journal has recently announced a kit to provide a "middle-of-the-road aid to cataloging."[31] Should this, or some similar commercial adaptation become accepted by a number of libraries, what consequences might this soon have on today's decisions?

The manager must deal with each aspect involved in the decision to enter a cooperative. He must inspect each alternative and appraise the data from his own experience and knowledge of his library, his staff, his community, and his governing board. The major critical aspects involved are these:

A. Time element--will there be a delay in the receipt of current books, and if so, will this adversely affect relations with the library's public?

B. Quality of product--not that the quality will be less--indeed, it may be higher, but to what extent is the manager and the library willing to accept what comes, without change?

C. "Enterability"--if there will be changes in the old catalog to make the new cards fit, will these changes be important?

D. Staff situation--how will this decision affect the present staff?

E. The cost--how does the cost of the new service compare with the present cost for the same operation?

Any of these factors could be the basis for an entire study. Although the other factors are considered to some degree, this investigation is an attempt to apply a quantitative technique to the analysis of the relative worth of the cost alternatives. No techniques developed would give the final answers; they can only provide information. This information can serve as a basis for managerial decisions, which can thus be based upon rational considerations instead of upon intuition and feelings.

---

[31] Daniel Melcher, "Central Processing on a Do-It-Yourself Basis," Library Journal, XC (Jan. 15, 1965), 316.

Worthy of general consideration at this point is a description of scientific management itself, with reference to some of the techniques it employs. Scientific management is an attitude of critical, objective evaluation of achievement. It is said to be non-traditional and creative. It is non-traditional since it seeks to evolve new methods and concepts on many levels without reference to past procedures, where old methods or concepts seem to have failed in solving current problems. Scientific management is creative because it seeks to study the questions of what has not been done as much as the questions of how vital activities should best be continued. Differing from the concepts expressed in the term "library administration," scientific management stresses the accumulation of data from controlled experiments and the study of the details of operation wherever possible. Scientific management may be rather succinctly summed up in the industrial engineer's motto, "There is always a better way." The implication is that there is no one best method of doing anything--even where the method has been arrived at through objective study.

Work simplification has as its key words eliminate, simplify, rearrange, and combine. Its thesis is that any piece of work being done involves some operations which can be dropped completely, that of those which remain some can be simplified, that operations can be arranged into better sequence, and that it may be possible to combine into a single operation some of the remaining simplified ones. Work simplification, as used in industrial (or management) engineering, involves time and motion study, process analysis, work-place layout, and methods study.

The "larger unit of service" concept as a current trend in library administration and organization has a direct relationship to work simplification, administrative theory[32] and a parallel in other fields:

> Many parallels can be found in other local government programs, notably in education and public health. Those in health are perhaps most analogous. The first and simplest health needs are met in the immediate community by a complex of doctors, nurses, and the small local hospital. At a next level are the better equipped central hospitals, larger staff, and various kinds of specialists and resources. At still another level is the research center, drawing on a region, possibly an entire state or even neighboring states and the nation in order to serve the special health needs of the area and to perform needed research.[33]

From the administrative viewpoint, larger units have several definite advantages. A strong system can provide a well-selected and current reference collection, including periodicals, documents, maps, films, as well as a central reservoir of circulating materials which is representative of all fields of knowledge. Only by becoming part of a larger unit can a small library add to its resources and make these available to readers. Too, the small library is inherently limited in providing the highly skilled personnel to staff services it could expect from a larger unit. This is especially true of professional and other specialists such as reference librarians, catalogers, young people's librarians, children's specialists, to name only some of the specialized skills needed to provide quality public library service.

---

[32] Luther H. Gulick and Lyndall Urwick, Papers on the Science of Administration (New York: Institute of Public Administration, Columbia University, 1937).

[33] John G. Lorenz and Rose Vainstein, op. cit., p. 31.

As an avenue of research this investigation utilizes the intensive study of catalog departments in a selected number of libraries of a comparable size and type. The order, cataloging and preparation functions were analyzed in terms of the method suggested by Miller,[34] that is, time and cost analysis. The important constituent dealt with in this study is the time element. Although time has been translated into cost for convenience as a term of reference and comparison, salaries and wages do differ from place to place. These factors can fluctuate quickly, influenced by wage adjustments, changes in staff assignments, resignations and replacements, etc. If the salaries paid in a given library are comparable to those in this study, then the cost translations given here are appropriate. If not, the administrator need only to substitute his own salary and wage values to the times reported.

---

[34] Robert A. Miller, "Cost Accounting for Libraries: Acquisition and Cataloging," Library Quarterly, VII (October, 1937), 511-36.

The results of these analyses are compared with the cost charged by an interlibrary cataloging cooperative. An attempt is made to establish a reasonable cataloging cost per volume in libraries of this specified type and in terms of the functions described above. By comparing the various methods used to process books in these libraries and the times taken to do so, an economical work flow and organization of book processing can be evolved.

CHAPTER II

SURVEY OF RELATED RESEARCH

A study of this type involves the research literature of several fields which might be placed under the general heading of "Scientific Management in Libraries." The elements assembled therein would include time and motion studies, cost accounting, costs of cataloging, flow charting, and at least the cost elements reported in accounts of cooperative processing.

This literature has been treated under four sub-heads. These groupings are: Library Cost Studies to 1950, Cost Accounting and Cost Studies since 1950, Time and Motion Studies, and Centralized Processing. The first of these groupings, Library Cost Studies to 1950, is a recapitulation of the traditional or classical studies in this area, to which almost every writer on this subject makes reference. The second grouping, Cost Accounting and Cost Studies, deals with the related research since 1950. Summary articles of a bibliographical nature have appeared upon each topic; these articles review and evaluate the studies of an earlier period. The reader is referred to the summary articles under each sub-head for a more detailed discussion of the earlier literature of that subject, if required. Important studies and useful books and articles which have appeared since the summary treatments were compiled have been noted and reviewed.

Library Cost Studies to 1950

The history of library cost studies is intertwined with that of cost accounting techniques. Studies in this area range from rather primitive undocumented estimates to the elaborate study made for the Public Library Inquiry by a recognized industrial consultant. Chronologically, they are as follows:

1857 - Cutter's estimates of costs of cataloging.
1886 - Whitney's estimates of costs of cataloging.
1913-1916 - A.L.A. Cataloging Test.
1926 - Windsor's estimate of the cost of cataloging.
1929 - University of California Library Cost Survey.
1930 - University of Illinois Library Cost Analysis for Order and Exchange Department.
1936 - Wesleyan University Library Cost Accounting Study. (Rider)
1936 - Miller's University Library Cost Study.
1939 - Montclair (N.J.) Public Library Cost Study.
1946-49 - Public Library Inquiry Study of Work Measurement.

These studies are identified in the bibliography.

With one exception, these studies were limited to labor costs. The one exception included labor costs as well as other costs. The basis of these studies of labor costs has been a time-sheet, on which a record was kept by each employee of the time spent on each of a list of operations or subdivisions of operations. In some instances, a record was also kept of the number of items which had been processed during the period of time recorded. Library costs in these studies have been calculated from data on the time-sheet and the production record. This is the basic technique used also in the present study, with verification of the time recorded by the reporter's own observations and by detailed study of the library's processing technique.

While the coverage of the studies mentioned above has varied from the operations of one department in one library to all departments in several libraries, this study attempts to deal only with the technical processing departments in five public libraries of approximately equal size.

Felix Reichmann has summarized the pre-1953 report literature on this subject in a Library Trends article entitled "Costs of Cataloging." Reviewing the early contributions of Cutter, Bishop, and the ALA Survey of 1914, Reichmann points out that compilations of actual data from groups of libraries have not been promising.

Whitney questioned the practice of determining costs by dividing the cost of the volumes, plus salaries, by the number of volumes processed, because he felt that costs would increase with library size due to increased time required for searching. Bishop noted that it seemed more accurate to compare processes and results which were parallel in number and form than to compare money costs which must vary as the fixed charges vary. The 1916 cataloging test was criticized by Josephson, as he felt there were too many factors that would influence the time consumed in cataloging, and thereby the cost of the work. Some of these factors were organization, local conditions, and the alertness and experience of the staff.

Few libraries report cost accounting for cataloging and rarely did they publish processing cost. Rider's study, for Wesleyan University Library, was an exception, becoming a classic in cost accounting methods. In discussing the other major surveys, Reichmann points out two themes common to the majority of them, viz., reluctance to set production standards, and disregard of the qualitative aspects of the product. He notes:

> Unit cost is a mathematical generalization and therefore does not do full justice to individual cases. Moreover, it is a quantitative measurement, and the qualitative imponderabilia which do not lend themselves to arithmetical calculation are unsatisfactorily considered. This is one of the reasons that most American libraries have been lukewarm about setting standards of production.[1]

Cost Accounting and Cost Studies

Since 1953, there has been a voluminous report literature on cost accounting in libraries. The Hoover Commission on Organization of the Executive Branch of the Government, most active in the period 1953 - 1955, issued its report advocating performance budgeting for public service agencies in 1955. Since that time, many libraries have attempted, and reported upon their attempts, to justify their budgets in terms of service to be performed. Constance Brutcher reviews cost accounting for the library and what it means. She notes:

---

[1] Felix Reichmann, "Costs of Cataloging," Library Trends, II (October, 1953), 307.

> The cost of a unit of product is composed of three elements: (1) the direct material required to make the product, (2) the direct labor employed to produce the product, and (3) the overhead applicable to the product.[2]

In its simplest terms, performance budgeting is an attempt to prepare, analyze and interpret the financial plan in terms of service and activity programs, basing the estimates on the actual per unit cost of the programs and activities. This concept has been advocated as a better way of financial planning than the traditional object classification of accounts. Brutcher states the advantages of performance budgeting:

> . . . besides providing a more-easily-understood statement of what is to be accomplished with the requested funds (performance budgeting) can provide a more accurate statement of needs, provide a more equitable allocation of funds, allow for carefully controlled expenditures of

---

[2] Constance Brutcher, et al, "Cost Accounting for the Library," Library Resources & Technical Services, VIII (Fall, 1964), 414.

> funds, give performance and cost control, and serve as a planning tool.[3]

In academic libraries there has been a trend toward budgeting by formula, and McAnally advocates performance budgeting as the ideal way to build a library budget.[4] Brutcher (who taught a class in cost accounting for the library at the University of California at Los Angeles in 1963), and McAnally regard cost accounting as a means of sharpening existing budgetary tools.

Three areas in which special studies have been made are the reproduction of catalog cards, the comparison of cataloging with commercially printed cards against those produced internally, and the cost of book catalogs versus card catalogs. The latter topic has little bearing on this study, but the study by Heinritz on book versus card catalog costs[5] has been carefully perused for its attention to detail and use of various methods, including the experimental, in his study.

Since the study was basically a comparison, it was highly desirable to be able to compare an identical intellectual content in the case of each catalog. This problem was similar to the situation discussed in the present study, in Chapter VII on the depth of cataloging. Heinritz was dealing with two types of catalogs--a book catalog and a card catalog. He solved the problem by finding one library which compiled both types. The present study dealt with the comparability of five catalogs of one type by presenting a visual display of the product, with an accompanying analysis.

---

[3] Ibid., p. 413.

[4] A. M. McAnally, "Budgets by Formula," Library Quarterly, XXXIII (April, 1963), 159-71.

[5] Fred Heinritz, "Book Versus Card Catalog Costs," Library Resources & Technical Services, VII (Summer, 1963), 229-36. (PhD dissertation at Rutgers also available on microfilm.)

The last word on various methods of reproducing catalog cards has been said, seemingly, by the Library Technology Project report done by the consulting firm of George Fry and Associates for the American Library Association.[6] This report describes in detail the various ways of reproducing catalog cards, with attention devoted to the time involved for each process and a comparison of quality.

The introductory chapter discusses the problems of card reproduction, and the factors involved in the selection of a particular method of reproduction, for libraries with low-volume and high-volume needs. The study points out that most libraries (with high-volume annual requirements) will probably find it advantageous or necessary to use two or more methods of card reproduction.

The second part of the study describes thirteen processes, ranging from stencil and offset duplication through addressing machines to the more complex electrostatic and diffusion transfer copying methods. The principles involved are explained, the methods and equipment used are described, as are the advantages and disadvantages of each process. The third section contains tables showing the comparative costs of the various processes. The purchase price of equipment, service charges, costs of materials, and the time to carry out the various operations are given.

---

[6] American Library Association. Library Technology Project, Catalog Card Reproduction (Chicago, American Library Association, 1965).

The findings of the Fry study have been discussed further in the summary chapter, as the economical reproduction of catalog cards was found to be an important factor in reducing the cost of centralized processing as described in the present investigation.

Berkowitz's study,[7] on the costs of cataloging with LC cards and by original cataloging methods, is an example of the second area of current study. Although the sample was small, 17 books, the study ran tests to determine the cheapness of LC cards versus original cards reproduced by the Flexowriter. LC cards were found to be more economical. Title pages of the books are depicted in the study, and each book is fully described. All preparation times for the two cataloging methods are accounted for, and the final product of a main entry card is illustrated for each book. Berkowitz defines original cataloging as follows:

1. The complete origination of bibliographic, or

---

[7] A. M. Berkowitz, "A Study of the Costs of Cataloging Books with Library of Congress Cards and by Original Cataloging" (unpublished Master's thesis, Catholic University, Washington, D. C., 1961).

2. The assembly of cataloging data from existing bibliographical sources, or
3. The editing of Library of Congress card copy in book or proof sheet form, and
4. The production of the finished catalog card.[8]

This definition, with one exception, has been followed in the present study. The editing of card copy, either Wilson or LC cards, did not constitute original cataloging in this study.

Many libraries have reported the results of their own cost studies, and these are noted in the general bibliography. Two of the most thorough of these studies are exemplary in their attention to variables and other methodological factors. These are MacQuarrie's[9] study in Southern California and Wynar's[10] study of the technical services division at the University of Denver Libraries. Both of these reports contain helpful forms and define precisely the work activities that were to be measured in each step. Each study was an attempt to establish standards of performance for technical services.

Six college and 23 public libraries reported for MacQuarrie's study, with an overall average cost for cataloging in the public libraries of $2.37. The combined costs of ordering, cataloging and preparations for the average of the reporting libraries in this area were lower than those offered by most commercial companies. MacQuarrie found that cataloging costs increased with the size of the library. This fact has a bearing on the research conducted here, as each non-member library studied anticipated growth in the number of books acquired.

---

[8] Ibid., p. 1.

[9] Catherine MacQuarrie, "Cost Survey: Cost of Ordering, Cataloging and Preparations in Southern California Libraries," Library Resources & Technical Services, VI (Fall, 1962), 337-45.

[10] Donald Wynar, "Cost Analysis in a Technical Services Division," Library Resources & Technical Services, VII (Fall, 1963), 312-25.

Wynar's detailed study of one processing division attempted to contribute to the setting of standards for technical services. Operating within precise definitions of work activities, Wynar established the following times for activities that were measured in this study:

Process	Min.	Secs.
Cataloging with LC cards	6	42
Cataloging without LC cards	24	54
Cataloging with LC data, but no cards	11	54
Revising	2	30
Typing card sets	4	36
Processing, filing and pulling LC card orders	3	24
Mechanical processing	4	0

Another important field for cost study at the present time in library theory is that of documentation or information storage and retrieval. These new processes require expensive equipment and extensive indexing time and there is, rightly, much concern in ascertaining if the results are worth the cost. Cost accounting and time studies are used as a basis for analysis in this area, but the writer has not dealt with the literature of this field as it did not pertain to the present study.

These comments are not intended to give a blanket endorsement to a cost accounting study per se. Many such studies have proven valueless because standards and uniform statistics or descriptions of activities have been lacking. However, the recent studies noted above as well as others described in the bibliography, show that librarians are making headway in developing uniform reporting and study methods.

Time and Motion Studies

Richard H. Logsdon, in a 1954 issue of Library Trends discusses the summaries and reports in this field in an article entitled "Time and Motion Studies in Libraries."[11] He deals with the history of time and motion methods as applied to library procedures and points out the major studies that have had contributing influences in developing this technique. Some of these studies already discussed have become landmarks in the field, i.e., Baldwin and Marcus, Rider, R. A. Miller, Los Angeles Public Library, Pierce, and Young and Cresap.

Logsdon also points out the pioneering uses of flow charting. Since the advent of automated processes this technique has become more familiar, but it still remains insufficiently applied to work patterns in libraries. This entire issue of Library Trends is entitled "Scientific Management in Libraries," and the last article, by Lucile M. Morsch, called "Scientific Management in Cataloging," is especially appropriate for this study. In it, Morsch points out what is probably the crucial limitation in any study of cataloging cost:

---

[11] Richard H. Logsdon, "Time and Motion Studies in Libraries," Library Trends, II (January, 1954), 401-09.

> Many students of this problem have hoped to determine production standards through cost studies, and this indeed would be a contribution to management. Too much faith, however, has been placed in the comparability of statistics and cost figures from one library, whether in terms of money or time, with those of another of the same general type and size, without specific definitions and without consideration of the quality of the product. No study has been found that analyzed adequately the nature of the materials being cataloged, or attempted to evaluate the quality of the work done.[12]

It is hoped that the current study can avoid this pitfall to a larger degree by devoting intensive study to the operations in each of the five libraries involved so that comparable work procedures can be assigned to their appropriate categories and so that the quality of the product can be compared.

Since 1954, a number of reports on the application of time and motion study in the library field have appeared. Although it is interesting to note a shift of emphasis in this period from the inspections of traditional library routines to those concerned with documentation systems and procedures, these latter references have been omitted as being inappropriate to this study. Many of the time studies are integral parts of those concerned with cost accounting, such as the ones by MacQuarrie and Wynar noted previously. The time study is a basic part of cost accounting, as it is one method of determining the direct labor costs to be ascribed to each unit of operation.

---

[12] Lucile M. Morsch, "Scientific Management in Cataloging," Library Trends, II (January, 1954), 472.

A recent time and motion study that was not an attempt to establish the unit cost of book processing was Henry Voos' Standard Times for Certain Clerical Activities in Technical Processing.[13] The premise of this study is that jobs which are identical in libraries can be timed. If the timing is of minute tasks, the increments which can compose each particular library's operation can be added to give the administrator some idea of how much time is spent on certain portions of the task (p. 102). Voos apparently was successful in establishing norms for selected clerical activities.

Measured were the pasting of book pockets, date due slips and book plates; the installation of plastic covers; erasing; property marking of library materials; graphotyping; catalog card typing and related matters; and book lettering. Voos used direct observation with a stop watch as a method of gathering data. The mean was used as a measure of central tendency, with observations taken in small groups. The means were individually calculated for these groups, and then the mean of the entire sample was taken. Determinations were then made to ascertain if the subsets of sample means fell within the mean range of the large group. Some of Voos' findings are comparable to times derived in this study and these are pointed out in the summary.

---

[13] Henry Voos, Standard Times for Certain Clerical Activities in Technical Processing (Dover, New Jersey: Technical Information Branch, Picatinny Arsenal, 1964).

One study that does not seem to have gained wide circulation and is worthy of remark is that by Elftmann.[14] He states that the industrial engineering technique is better than cost accounting methods for obtaining unit costs because the variations between libraries make cost studies difficult. No complete processes are alike in any two libraries, although there are certain elemental parts of these processes which are. Other writers have expressed their objections to time study comparisons because of lack of uniformity. J. B. Snow compared times in two technical processing units,[15] but noted that time comparisons are very difficult because of differences in processes, entries, number of cards, etc.

---

[14] R. A. Elftmann, "Library Cost Studies; Industrial Engineering Vs. Cost Accounting Techniques" (unpublished Master's thesis, Library School, University of Minnesota, 1953).

[15] J. B. Snow, "A Comparison of the Time Spent on Technical Processes of Two Separate Library Units . . ." (unpublished Master's thesis, Library School, University of Washington, Seattle, 1952).

Centralized Processing

Centralized processing is not new; indeed, it can be traced back to the turn of the century, when the Library of Congress began to distribute printed cards. New processing centers have sprung up in nearly every state since the passage of the Library Services Act in 1956, and this is probably one of the most important facets of library science in terms of improved service to have occurred in this century. Mary Hanley, in her paper entitled Centralized Processing, Recent Trends and Current Status: A Review and Synthesis of the Literature, covers the field up to the summer of 1963. The articles deal with all aspects of cooperative and centralized processing; but as Hanley points out there are still many questions for which the literature does not now provide answers, and she lists fourteen such queries. Several of these questions concern costs either directly or indirectly, but her questions numbered 2 and 3 have a direct bearing on the approach of this present inquiry:

> 2. Can some reasonable area of costs based on percentage of former cataloging costs be established to guide in planning expenses of a new center and to measure the success of established centers?
>
> 3. Can these centers become independent financially, so that they could continue in the event federal aid ceases?[16]

---

[16] Mary Hanley, Centralized Processing, Recent Trends and Current Status: A Review and Synthesis of the Literature ("Occasional Papers," no. 71; Urbana, Ill.: Graduate School of Library Science, University of Illinois, 1964), p. 7.

In a survey of regional processing systems in county libraries, multi-county or regional libraries, by state libraries, by contract and by cooperation, Bendix[17] found many contrasts in matters of organization, financing, staffing, equipment, procedures, administration and maintenance. Each situation is distinctly different, and Bendix pointed out the difficulties that arise in operation. Although she identified various types of financial arrangements for paying for regional processing, she recorded that none of these were based on cost studies.

Evelyn Day Mullen[18] set forth some guidelines for establishing a centralized processing center, and included such things as a statement of aims and objectives, a statement of anticipated results, a list of questions concerning methods of ordering, cataloging, physical preparation of materials and other background matters, but gave no guidelines concerning cost considerations.

In describing the Georgia State catalog card service, Virginia Drewry[19] notes that the cost to the public libraries for card sets is five cents each. This service is part of a state aid program to schools and public libraries, and was serving thirty regional public library systems at the time. In the 1956-57 fiscal year 213,412 sets were distributed, but no description is given on how the per set charge was established.

---

[17] Dorothy Bendix, "Regional Processing for Public Libraries: A Survey," Library Resources & Technical Services, II (Summer, 1958), 155-70.

[18] Evelyn Day Mullen, "Guidelines for Establishing a Centralized Library Processing Center," Library Resources & Technical Services, II (Summer, 1958), 171-75.

[19] Virginia Drewry, "Georgia State Catalog Card Service," Library Resources & Technical Services, II (Summer, 1958), 176-80.

James R. Hunt,[20] reporting on the historical development of centralized processing centers demonstrates the varieties of service and the rapidity of expansion which characterize growth in this field. Closing with a brief survey of existing centers, Hunt's article describes the methods of card reproduction and other matters but lists no charges for the service.

In a comparison of the operation of processing centers, Elizabeth Adcock[21] describes the services of three centers. The first is a statewide center operation by the North Carolina State Library, which charges $.75 per volume processed. The second center discussed operates within the framework of a public library system, that at Westchester, New York, which is supported by the State, and there is no processing charge to participating libraries. The third center described is that created by an association of independent libraries at Barnesville, Ohio, the Library Service Center of Eastern Ohio, which charges $.75 per volume to public libraries and $1.00 per volume to schools. In addition, the writer discusses briefly the Northern Colorado Processing Center, located in the Weld County Library, Greeley, which charges $.80 per volume.

---

[20] Hunt, _op_. _cit_., p. 54-62.

[21] Elizabeth Adcock, "A Comparison of the Operation of Various Processing Centers," _Library Resources & Technical Services_, VIII (Winter, 1964), 63-70.

A case study approach has been used by Clara Wendel[22] in her discussion of the Book Processing Center at Orlando, Florida. She describes the origins, establishment and early operations of the center. The per volume charge was set at $.75 during the first year, and the actual processing cost was $.89 per volume for the first year of operation; the State Library underwrote the difference based on a formula of rural service.

Mary L. Eckford[23] has written a detailed account of the Library Service Center of Eastern Ohio, which was briefly discussed by Adcock[24] at a later date. This is a case study, telling in related sequence the what, why, how, when, and where of the establishment. The initial budget to process 40,000 books was set at $30,000. The estimate for initial capital expenditures for equipment was $16,350. A grant of $35,000 from Federal aid funds for initial capital investment and operating expenses was approved by the Ohio State Library. Of these funds, $20,000 was to be returned over an eight-year period from the Center's anticipated operating surplus. A very detailed description of operations is given, with charts showing the movement of order forms, books, floor plans, and work assignments.

---

[22] Clara Wendel, "Book Processing Center, Orlando, Florida," Library Resources & Technical Services, VIII (Winter, 1964), 71-76.

[23] Mary L. Eckford, "The Library Service Center of Eastern Ohio," Library Resources & Technical Services, V (Winter, 1961), 5-33.

[24] Adcock, op. cit., p. 67.

Evelyn Day Mullen[25] has written another article about centralized processing, but this is a review of the published literature.

Orcena Mahoney[26] has summarized the background and status of various processing centers. The article is accompanied by a tabular display of information about the centers, which gives cost figures; these range from $.40 to $2.75 per volume.

Brigitte Kenney[27] has written a detailed monograph on the Southwest Missouri Library Service, Inc., in its first year of operation. This report was sponsored by the Council on Library Resources, which had made an equipment grant of $4,000 to the Center. In order to relate savings, increased efficiency, comparative costs, etc., under the Center, technical processing procedures in member libraries for the year prior to the start of the Center were studied and analyzed. The financial support, organization and actual procedures and machines used in the Center were described in detail. Cost figures are given when available, but Kenney properly cautions against using these figures in other situations. Before the Center began operations, each participating librarian was requested to estimate the salaries expended for physical preparation of books as well as for cataloging and classification. In addition, supply and equipment costs were calculated. When translated into costs per volume, the answers ranged from $.42 to $3.50 per volume for the nine libraries that supplied information. The cost per volume for the work done at the Center was $.56, although this did not include some tasks that remained with the local outlet. A chapter of the study is devoted to reviewing the effect of the Center on member libraries. Copies of the contract between the Center and each member library are included, as are the Articles of Association. Kenney's study is extremely valuable as a guide for planning similar centers, and she points out ways in which future studies could be made more valuable.

---

[25] Evelyn Day Mullen, "Regional Processing for Public Libraries," Library Resources & Technical Services, V (Winter, 1961), 34-39.

[26] Orcena Mahoney, "Centralized Processing Centers," Library Resources & Technical Services, V (Winter, 1961), 40-47.

[27] Brigitte Kenney, Cooperative Centralized Processing (Chicago: The American Library Association, 1959).

Frances D. Carhart's[28] study on the Southwest Missouri Library Service followed Kenney's work, above, after the Service had been in operation for three years. The report placed emphasis on current practices and policies, and by presenting the organizational plan, fiscal structure, detailed description of the processing procedures, and the results of three years' operation, offers a valuable guidepost to similar moves. Carhart displays several tables which show the costs per volume to member libraries; the average charge in 1959-60, was $.37.

Other studies are noted in the bibliography, but one recent investigation must be singled out. Everett L. Moore[29] has made a preliminary study for a processing center to serve junior college libraries in California. This study measured the correlation between the books purchased annually by 18 junior college libraries. Moore decided that there was enough duplication to warrant centralized processing, as 80 titles from a list of 100 were owned by five or more libraries. Moore went further and determined the cost of processing in the junior college that he administers, finding it to be $1.76 per volume; he compares this with the cost of using a commercial firm for the same services, which he found to be $2.64 per volume. He concludes that centralized processing for junior colleges in Southern California would be economically feasible, and recommends that one be started, suggesting a charge of $1.50 for each volume processed during the initial stages of operation.

---

[28] Frances D. Carhart, Southwest Missouri Library Service, Inc., (Chicago: American Library Association, 1962).

[29] Everett L. Moore, "Processing Center for California Junior College Libraries," Library Resources & Technical Services, IX (Summer, 1965), 303-18.

One final comment by Maurice Tauber is appropriate. He stated "Costs are difficult to compare unless one has a complete body of data concerning the agencies compared . . . by observation and study it may be possible to isolate the more stable guidelines."[30] This neatly sums up the approach used in this study, and the next chapter outlines the methodology used to achieve these goals.

---

[30] Maurice Tauber, "Technical Services in 1963," Library Resources & Technical Services, VIII (Spring, 1964), 104.

CHAPTER III

METHODOLOGY

The study was formalized within the framework of the following hypothesis: The cost to the individual library in a centralized system for a given quality of technical processing is less than the cost of similar technical processing performed by comparable libraries, primarily because centralization eliminates duplication of work and staff.

Logically, it seems that any combination of libraries into a centralized system should result in lower processing costs for each of them since centralization should eliminate repetition of professional and clerical tasks. The efficient application of machine and mass production methods possible in such an operation should further speed manual tasks. Further, it may be theorized that the greater the degree in duplication of book titles realized, the lower would be the time/cost factor per unit cataloged.

The study was designed to be carried out in the Chicago metropolitan area where a group of public libraries have been subscribing to a processing service sponsored by one of them, the Oak Park Public Library. The center is officially named the "Oak Park Book Processing Center." The Center began operation on May 1, 1964, without the aid of Federal funds.

The Center

The original study design called for the measurement of the cost of technical processing within the Center, the measurement of the cost of technical processing in five other libraries which were not members but whose general characteristics were similar to member libraries, and comparison of the results of the two sets of measurements. However, although the analysis of the Center's operations was delayed as long as possible to enable it to overcome initial difficulties, the status of its function after the first year was so unstable as to preclude any valid study. Indeed, at the time the study of the Center was to have been conducted, the administration had declared a ten weeks' moratorium on book orders, and there was some doubt as to whether the Center could continue. Due to these circumstances, the cost of processing in the Book Processing Center was derived by dividing the total amount of money spent during the study period by the number of volumes processed in the same period. As the Book Processing Center is a separate entity with its own budget, and sharing only the space of another library, this procedure should represent the total outlay to perform the service. It is true that the services of the Center may be obtained by participating libraries for $1.20 per volume, but this was found to be substantially below the actual per-volume cost of the operation. The differences were made up by subsequent Federal grants. These factors, as well as the origins and operations of the Center, are discussed in Chapters IV and VIII.

Some broader aspects and implications of centralized processing may have been considered. The fact that the processing center was having difficulty in getting underway created an opportunity to investigate the problems of beginning such a center. Additional investigation has been devoted to the reactions of individual members to center operations.

Member Libraries

Several other elements in the original design of the study were also changed. Initially it was considered necessary to select five member libraries and analyze their handling of the cards and the books when these materials were received from the Center. If a great deal of changing and modification in the products had taken place, the cost of this time would of course have to be added to the charge made by the Center. A visit was made to six member libraries and it was found that none of these libraries spent a measurable amount of time with the books received from the Center. This finding was further substantiated by the results of a telephone questionnaire to the membership of the Center, discussed in Chapter V. It was thus decided that it was unnecessary to make a prolonged observation of what member libraries did with the books and cards, once the boxes received from the Center were opened and the materials dispersed.

Another factor reconsidered was that of attempting to measure the time spent in ordering books. The first study proposal called for analysis of operation in three areas, book ordering, cataloging, and processing. However, visits to member and non-member libraries alike revealed little difference in the placing of orders. The same kinds of records were maintained whether a library sent its orders to a book jobber or to the Center. The same type of invoices were handled, and at this beginning period there was probably more correspondence with the Center concerning errors and reports than would be necessary in dealing with a good book jobber. Another reason for eliminating order work from the study was its inter-relationship with the book selection process. Obviously centralized processing may have an effect on book selection procedures, but in many cases book selection and book ordering were so intertwined as to be inseparable for measurement.

As evolved, the investigation is a detailed study of two ways of processing books. Time studies and cost analysis have been applied to five individual libraries in an attempt to establish their cost of processing a book. For comparative purposes, the cost of processing books in the Center was established by determining the total production of volumes and dividing that figure into the money spent during that period. A detailed investigation following the pattern of the case study technique, although not so intense as the traditional form of such a study, has been used to describe the operation of the Processing Center. That is, data concerning the Center's history have been collected, examined and described; the status of the situation has been given; diagnosis and identification of causal factors of the difficulties have been presented, as well as an account of their subsequent adjustments and arrangements undertaken to counter-balance these problems.

In addition, an intensive study has been made of the individual member libraries, their attitudes toward the Center, how membership has affected them in both positive and negative ways, the reasons for joining, etc. The study is thus a combination of statistical, case-study, and field observation procedures.

Non-member Libraries

The non-member libraries were the object of the most intensive part of the investigation. The scope of the study considered necessary to develop the analysis of the time and cost factors in these libraries encompassed the following points:

A. Organization--the assignment of staff in the processing function for the following duties: searching catalog data, classification, subject headings, descriptive cataloging, preparation of catalog cards, and preparation of materials for the shelves.

B. Staff--the number and qualifications of personnel required to perform each step quickly and accurately.

C. Methods--the flow of work, routines, forms, and mechanical devices used.

D. Physical factors--location, layout, furnishings, and convenience of facilities provided.

E. Controls--the statistics and reporting systems needed to provide current measures of the time and cost of work produced and the condition of the work load.

Choice of non-member libraries.--Several factors were used as guidelines in selecting libraries for inclusion in the study. It was desirable to choose five or six libraries which were large enough to have a cataloger scheduled for certain hours and at least the rudiments of a processing department as an entity. It seemed advisable, on the other hand, to limit the size of libraries so that the processing function did not become too complicated and involve a large number of staff. In order to control the factor of geographical location and its effect on wages and living costs, it seemed suitable to draw upon libraries in the area served by the processing center.

The plan of the study called for investigation concerning five libraries. This plan was adhered to, although six libraries were dealt with in the initial phases of the study. The extra library was included merely as a precaution--a fortunate choice as one library had to withdraw from the sample, as will be explained later.

With these elements present in selecting the non-member libraries, a list of member libraries was ranked in order of book expenditure, population served, number of volumes in the collection, and number of volumes added annually. This presented a composite picture of the libraries as individual entities, as well as an idea of their average characteristics as a group. Although population served would have no direct bearing on library procedures, it was used as a guide in choosing comparably sized communities.

Table 1 indicate the mean averages and medians calculated for these four factors. Initially it was thought that the same characteristics for the group of non-member libraries to be selected should parallel the average figures, or levels, of the member libraries. It was soon discovered that this was not practicable. Of the libraries in the area spending $10,000 to $11,000 annually for books, few had full-time or scheduled catalogers and it was assumed that more reliable records could be garnered from those libraries which had cataloging staffs usually free from non-processing interruptions. Also, it was impossible to secure the participation of some libraries in the study. Thus the averages from the group of non-member libraries chosen are somewhat larger than those of the member libraries, as shown in Table 2.

Considerable difficulty was experienced in assembling the best group of five or six libraries from the total

TABLE 1

RANKING OF MEMBER LIBRARIES

Book Budgets[1]		Number of Volumes[1]		Population[1]		Volumes Added, 1963-64	
Westmont	2,007	Addison	3,292	Woodale	4,414	Westmont	679
Tinley Park	2,399	Franklin Park*	3,719	Barrington	5,434	Woodale	972
Woodale	2,491	Woodale	5,081	Westmont	5,997	Lombard	1,473
Addison	3,237	Tinley Park	7,152	Tinley Park	6,392	Barrington	1,487
Franklin Park*	4,000	Westmont	13,097	Addison	6,741	Tinley Park	1,605
Barrington	4,861	Palatine	17,657	Geneva	9,575	River Forest	1,641
Lombard	5,997	Northbrook*	18,171	Western Springs	10,838	Elmwood Park	1,682
Calumet City	6,967	Barrington	18,821	Palatine	11,504	Cicero	1,753
Northbrook*	7,396	Melrose Park	20,390	Northbrook	11,635	Melrose Park	2,192
Cicero	7,513	Calumet City	21,835	River Forest	12,695	Calumet City	2,375
River Forest	7,553	Lombard	22,261	Naperville	12,933	Addison	2,442
Melrose Park	7,585	Western Springs	23,937	La Grange	15,285	Palatine	2,613
Palatine	8,876	River Forest	24,306	Glenview	18,132	La Grange	2,837
Western Springs	10,689	La Grange	24,702	Franklin Park	18,322	Geneva	3,110
Naperville	11,131	Naperville	25,781	Ottawa	19,408	Ottawa	3,200
Geneva	11,320	Elmwood Park	26,188	Morton Grove	20,533	Western Springs	3,626
Ottawa	12,023	Morton Grove	30,189	Bellwood	20,729	Wheaton	3,959
Elmwood Park	12,089	Bellwood	30,652	Downer's Grove	21,154	Naperville	4,265
La Grange	12,569	Geneva	31,676	Melrose Park	22,291	Downer's Grove	4,346
Downer's Grove	12,903	Arlington Hts.	43,154	Lombard	22,561	Arlington Hts.	4,627
Wheaton	14,576	Wheaton	45,704	Elmwood Park	23,866	Bellwood	4,820
Bellwood	16,876	Downer's Grove	47,252	Wheaton	24,312	Morton Grove	6,027
Arlington Hts.	17,988	Glenview	47,492	Calumet City	25,000	Joliet	7,007
Morton Grove	18,185	Ottawa	50,141	Arlington Hts.	27,878	Glenview	7,275
Joliet	22,666	Cicero	52,468	Oak Park	61,093	Oak Park	8,621
Glenview	23,898	Joliet	77,232	Joliet	66,780		
Oak Park	31,997	Oak Park	123,184	Cicero	69,130		

N = Number of libraries, T = Totals, X = Mean Average, M = Median.

N = 27	N = 27	N = 27	N = 25
T = 299,795	T = 845,534	T = 574,632	T = 84,634
X = 11,104	X = 31,316	X = 21,282	X = 3,385
M = 10,689	M = 24,306	M = 18,322	M = 2,837

*Data as given for 1962-63 as they were not reported for 1963-64.

---

[1] Source: "Statistics of Library Service in Illinois, 1963-64," Illinois Libraries, XLVI (October, 1964).

TABLE 2

COMPARISON OF FOUR AVERAGES: MEMBER AND NON-MEMBER LIBRARIES

Libraries	Book Expen.	Volumes	Population	Volumes Added
Members of Center--Mean	$11,104	31,316	21,282	3,385
Members of Center--Med.	10,689	24,306	18,322	2,837
Independent Libs.--Mean	15,954	41,973	27,962	4,462
Independent Libs.--Med.	16,720	48,249	29,993	4,157

available. Geographical location, staff shortages and illnesses, building programs, willingness to become involved--all contributed to the problems in this phase of selection. When initial telephone contacts were made with the libraries that had the proper paper qualifications for the study, new negative elements were encountered. Several of the libraries were in a transitional stage; the book budget was large enough to warrant a full-time cataloger and appropriate staff, but the librarian had been unable to justify this expenditure to the library board, or had failed in the search for a professional cataloger at the rates offered by that library. Consequently, the librarian sat at the circulation desk and cataloged during uninterrupted periods. Some of these libraries were identified in the preliminary telephone calls, but several were not eliminated until the initial visits to the non-member libraries. A list of those libraries finally chosen and which participated in this study appears in Table 3.

TABLE 3

RANKINGS OF INDEPENDENT LIBRARIES CHOSEN FOR STUDY

Library	Book Expenditure	Volumes	Population	Volumes Added 1963-64
Evergreen Park	11,082	29,105	24,178	3,312
Westchester	12,600	27,981	18,092	2,802
Park Ridge	16,720	48,939	32,659	5,803
Park Forest	19,514	48,249	29,993	4,157
Des Plaines	19,845	55,592	34,888	6,235
Totals	79,770	209,866	139,810	22,309
Mean	15,954	41,973	27,962	4,462
Median	16,720	48,249	29,993	4,157

Initial visits to non-member libraries.--During periods in late December, 1964, and early January, 1965, visits were made to six independent libraries. Each librarian was found to be cooperative and interested in the study. An additional change had to be made when it was discovered that the program of cataloging at one library was in a temporary phase; the librarian was cataloging in a glass-enclosed office directly behind the circulation desk; this meant that she was continually interrupted by patrons and staff who wished to consult with her. Since this library was currently spending $25,000 for books, the librarian and the investigator agreed that it would be impossible to obtain a fair picture of the cataloging routine under these conditions. A telephone call to a nearby library possessing the same general characteristics received a favorable response, and the investigator was able to visit that library the same afternoon and elicit its cooperation.

At these initial visits, the investigator explained his purpose in making the study, demonstrated the organization of the time sheets and made arrangements for their use and return, made provisional arrangements for his next visit, became acquainted with the staff, and obtained general information about the cities and basic information about the libraries, the processing staff, time devoted to this function, type of cataloging done, etc.

In addition to the visits to the non-member libraries chosen for study, arrangements were also made in January to visit six member libraries. The information gathered in these and subsequent visits is reported in Chapter V. As word had been received that the processing center was experiencing operational difficulties, arrangements were also made to visit Oak Park in the same period.

Collection of Data

During the visits to each library, the processing staffs were asked to keep a daily work record sheet of their activities in processing new books. Each staff member who performed regular, substantial (i.e., a measurable amount) of work on new books was requested to keep the record for a period of four weeks. These weeks were not continuous but were selected at random over the early months of 1965. All daily work sheets were scheduled to be returned as completed each week, with the final record due the first week of April.

Each data sheet (reproduced as Appendix A), required the notation of three pieces of information, viz., the number of the activity the employee was doing, the time taken to perform the activity, and the number of items completed during the time noted.

The activities performed in technical processing were first sorted into thirty-two categories. This original and theoretical grouping of activities was refined by actual use in two test public libraries, those of Champaign and Urbana, Illinois. The cataloging and processing staffs in each of these libraries were requested to keep the daily work record for one week. This record was analyzed and discussed with the staffs and the number of activities to be recorded were reduced by eliminating some and combining others so that twenty-one activity categories remained. The net effect of this regrouping was to enlarge the scope of some of the activities so that the assignment of work categories performed by the staffs would be more evident. This eliminated the options of recording work performed in more than one place. Although no single schedule of activities would absolutely fit any library, it was determined that the list provided would come nearest to describing the processing functions in this size public library and could be used as a base for the five subject libraries. The activity code is reproduced as Figure 2 in Chapter VI.

The validity of these data was evaluated by the next step, a three-day visit to each library by the investigator to make his own observations. These observations included a work-flow analysis of the procedures involved in cataloging and processing a new book, inspection of the finished product, interviews with the staff and librarian, and stop-watch measurements of various processes.

The data collected concerning non-member libraries were thus in two parts: those collected by the staff and those collected by the investigator. The daily record sheets were, for the most part, completely satisfactory. On those returned the first week, several people had noted the activity and the time taken to perform it, but neglected to note the number of items completed during the period. This necessitated several telephone calls to obtain the needed information and to avoid the recurrence of such data omissions in the future. The staff-collected data were placed on punched cards, and the mean time and cost to perform each of the twenty-one activities were computed by machine. The computer also produced standard deviations and other statistical measures.

The investigator analyzed the data that he had obtained in verifying the records kept by the staff, and these time and cost analyses are presented here in the description following each library process.

In attempting to measure various activities with a stop-watch, the investigator tried to obtain at least twenty random observations of each activity. This was not always possible, so some observations were made on a continuous basis, that is, the beginning and ending times of an activity were noted, and divided by the number of items. It will be seen that in many cases the average times thus obtained differ only slightly from those obtained by random observation.

The investigator feels that he was generally successful in avoiding staff reaction to use of the stop-watch. He made no effort to cloak his observations, neither did he make an issue of what he was doing. He attempted to gain the confidence of the staff, told them what he was doing, but that they would not be timed on every unit, nor would they know who was being timed at any particular moment. He usually tried to be seated at a desk, often behind the person being timed, and was actively engaged in making flow-charts and diagrams of the work room, writing notes about the way the work was done, etc., and the staff apparently came to accept his presence as a matter of course.

There were several other limitations inherent in the investigation that had to be observed and controlled.

Quality of product.--Assuming that most public libraries of this size purchase the same kind of books, this selection of comparable libraries will lower the possibilities that foreign books, non-trade or out-of-print books, or society publications would be purchased and distort the picture. For adequate comparison the depth or level of cataloging and physical processing is fully described in each case. The descriptions are accompanied by visual presentations of each kind of cataloging. Each library was asked to check its holdings against a list of books consisting of 101 adult and 47 juvenile titles taken from an issue of Booklist. It was felt that this checking would provide some indication of the amount of duplication among these libraries, as well as furnishing a key to books that these libraries held in common and had cataloged about the same time, for comparison of cataloging depth. This list of books and the factors of duplication and character of cataloging are discussed in Chapter VII.

It was assumed that most of these libraries subscribe to the Library of Congress or Wilson card services; the differentiations in the level of cataloging for the vast majority of books would only be in relation to the amount of changing done on the commercial cards. By restricting the study to materials for which cataloging information was for the most part readily available, there was an adequate basis for time and cost comparisons concerning a basic level of work. It was assumed that by dealing with libraries of one type and size, the ratios of adult books to juvenile, fiction to non-fiction, and volumes to titles would balance out. It was also assumed that the physical handling of the book would be similar in items to be pasted, checked, plastic jackets installed, etc.

Statistical Measures

Since it was impractical for an observer to be present during the extended period required to gather adequate data for the study, it was necessary to depend on the records kept by each library staff. Using the time records kept by the staff as the basis for cost computation for each activity required that several assumptions about the method of gathering the data be made and tested.

First, it was assumed that the staff records would be a valid representation of the times spent on the activity. The statement of this assumption was formed as follows:

> The recording of time intervals spent on various library activities by the library staff involved is a reliable method of gathering such data, and there will be no significant differences in the times thus recorded, and those times obtained by an independent observer who watches the staff perform the same tasks.

Secondly, it was assumed that the gathering of data by two different methods would not affect the results. The library staff recorded their times in a continuous form, that is, each staff member would note the time an activity was begun on a specific number of books, and record the time taken to perform this activity. The total time was then divided by the number of items for that activity to obtain a time for each item. The observer, however, measured the times taken on each individual book. This assumption was that, although two different methods were used to establish the two series of times per item, there would be no significant differences in the results. These assumptions were then tested by the comparisons of the mean times recorded by the investigator in a random sample with those obtained by the library staff. This comparison was conducted by the application of several standard statistical tests to test the null hypothesis, i.e., that there was no significant difference between the means of the two measures.

A test for significance of difference between two means is the _t_ test. The _t_ test assumes that there is a homogeneity of variance in the distributions. Since there was some doubt about the homogeneity of variance in this case, it could not be assumed that the variances were homogeneous without testing for this factor. Therefore, the distributions were first submitted to an analysis of variance, or "F" test, to determine the significance of differences in the variances. If the difference between the variances was non-significant, the means were tested by the usual _t_ test. If the variances were significantly different, the means were tested by submission to the Behrens-Fisher test which is a test of significance for the differences between two means for which the errors are due to different causes, so that estimates of variance cannot properly be pooled.[1]

The formula for t is:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{1}{N_1} + \frac{1}{N_2}\right) \frac{(N_1 - 1)S_1^{\,2} + (N_2 - 1)S_2^{\,2}}{N_1 + N_2 - 2}}}$$

where X = Mean,

S^2 = Sample estimate of population variance, V,

N = Sample size.

The Behrens-Fisher test deals with cases of $V_1 \neq V_2$, so that pooling the two estimates of variance is not justifiable, and results in d, a value analogous to t, which is found by the following formula.

$$d = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{S_1^{\,2} + S_2^{\,2}}{N_1 N_2}}}$$

---

[1] Ronald A. Fisher and Frank Yates, Statistical Tables for Biological, Agricultural and Medical Research (New York: Hafner Publishing Co., 1963), p. 3.

An angle, defined by

$$\tan \theta = \frac{S_1}{S_2}\sqrt{\frac{N_2}{N_1}}$$

is used together with $N_1 - 1$ and $N_2 - 1$ to enter the table of significant values of d.

The results of these tests are given in Chapter VI, in a discussion of the comparisons of the staff time records with those of the investigator.

CHAPTER IV

THE PROCESSING CENTER

The following chapter is a description of the origins, processes and progress of the Oak Park, Illinois, Book Processing Center. As originally conceived, the study was to have included an analysis of the time and costs of performing cataloging and processing tasks within the Center. This analysis would then have provided a basis for comparison with the time and cost in five non-member libraries. This concept did not prove to be feasible, as will be explained in the section treating of the operational difficulties encountered by the Center.

As an alternative, the cost of processing in the Center has been determined by dividing the amount of funds expended, to provide all the services, by the number of volumes processed. In a traditional cataloging situation, this procedure is uncertain, because of the relationships of this department to other library functions. It is often difficult to subtract precise times for service at a public desk, or to assign a proper portion of costs for such items as space, utilities, insurance and other intangibles to the technical services department. In this case, however, this procedure was valid, as the Center operates as a separate entity with no relationships to another library except a spatial allocation, which was assigned a dollar value by the host library. Thus the procedure of considering the total funds expended in relationship to the number of volumes processed in the same period seemed legitimate for this study.

In any case, the Center has operated without a permanent administrator from February 1, 1965, and this position was unfilled at the time (February, 1966) this final report was being written. It is unlikely that any time studies or other analyses conducted during this period would remain constant for any length of time.

Origins.--The Oak Park Book Processing Center was conceived by a group of librarians who, meeting informally, call themselves the Library Administrators Conference of Northern Illinois (LACONI). In existence for about ten years, the LACONI group was originally concerned with minor problems such as registration of patrons, overdues, and fines but has grown in size and interest until it has been able to deal effectively with substantial library problems. Some of the activities of the group have resulted in the formation of the Northern Illinois Film Cooperative, establishment of a courtesy card policy for area libraries, and development of an annual in-service training program for non-professional staff members. In addition, LACONI has cooperatively purchased National Library Week publicity materials and developed a policy for library trustees concerning tenure and ethics for librarians in the area. Seventy-three librarians now participate in the bi-monthly meetings, and the group has organized an annual dinner meeting for library trustees.

In November, 1960, a member librarian suggested to the LACONI group that a feasibility study of cooperative cataloging should be conducted for this area. The suggestion was seized upon by the group as highly practicable, and a committee was appointed to plan and conduct such a study. With the aid of a grant from the Illinois State Library of $500, the services of a professional consultant were retained in May, 1961, and a questionnaire survey was conducted to determine attitudes and interests of the area libraries as well as to ascertain the volume of work that might be anticipated. The LACONI committee hoped to form a corporation or to obtain grants from publishers or foundations to establish their cooperative venture. Their efforts proved to be futile, as there were no state funds available at this time nor could they interest any outside benefactors.

During 1961-1962 the committee developed several tentative budgets and investigated the costs of rental space, proper equipment, and supplies, but matters were at a standstill until the fall conference of the Illinois Library Association in 1962. Present at this meeting was Robert Rohlf, librarian of the Dakota-Scott Regional Library in Minnesota, who was then on leave preparing A Plan for Public

Library Development in Illinois.[1] Rohlf suggested to the LACONI committee that a contract with a larger library might be a solution to the problem of obtaining the needed cataloging services.

Since the Oak Park Public Library, one of the largest in the group, was planning a new building which might provide space, that library board was approached about the possibility of organizing such a service for the area libraries. The board expressed its agreement and even enthusiasm for the proposal. In a letter dated November 16, 1962, Lester Stoffel, librarian of the Oak Park Public Library, circularized the membership of LACONI, as well as other interested libraries, asking for their definite reactions. The letter also asked that the various library boards submit statements of their attitudes and the degree of interest in such a contractual arrangement. The results were not overwhelming, but there was enough favorable response to encourage the Oak Park Board to finance the beginning of the Center from local tax monies, backed by a small endowment fund. Some libraries had expressed disinterest when a cooperative or corporation base for the project was being discussed, but became interested when a contractual agreement with a larger, established library was broached. The

---

[1] Robert H. Rohlf, "A Plan for Public Library Development in Illinois," Illinois Libraries, XLVI (March, 1964), 215-253.

Oak Park Board felt that this project was a worthwhile experiment in local library cooperation, and space was provided for the service in the new library building. Thus the Center was formed and began initial operations without recourse to federal funds or to state aid.

The search for a suitable administrator for the Center was begun in January, 1963, and it was not until November of that year that one was employed. There were several LACONI committee meetings with the new administrator to discuss the budget and general plans. The committee also spent a great deal of time investigating equipment and space layout for the Center, as well as reading the literature available on processing centers.

The administrator of the Center visited six established processing centers to obtain ideas and advice. Without reference to prior committee budget planning, she was able to develop a tentative budget that came quite close to the estimates previously worked out by the committee. The LACONI committee was pleased with these initial steps, and work progressed on the contracts to be signed and the basic cataloging code to be adopted.

The contract is a simple three-page statement outlining each party's responsibilities and duties. The Oak Park Library agrees to perform the service of centralized book processing, defined as the ordering, cataloging, and processing of books, while the subscriber "shall have and enjoy unqualified freedom of choice" in book selection. The subscriber agrees to spend not less than 75 percent of each year's book budget through the Center and agrees to pay $1.20 per book for the two-year period of the contract. The Center may specify a deadline date for placing orders, while the subscriber agrees to submit orders on prescribed forms and to accept the manner and style of the book processing. In addition, the Center will furnish all supplies needed and pass on to the subscriber any cost benefits that accrue. These, then, are the main features of the contracts issued January 10, 1964, to take effect May 1, 1964.

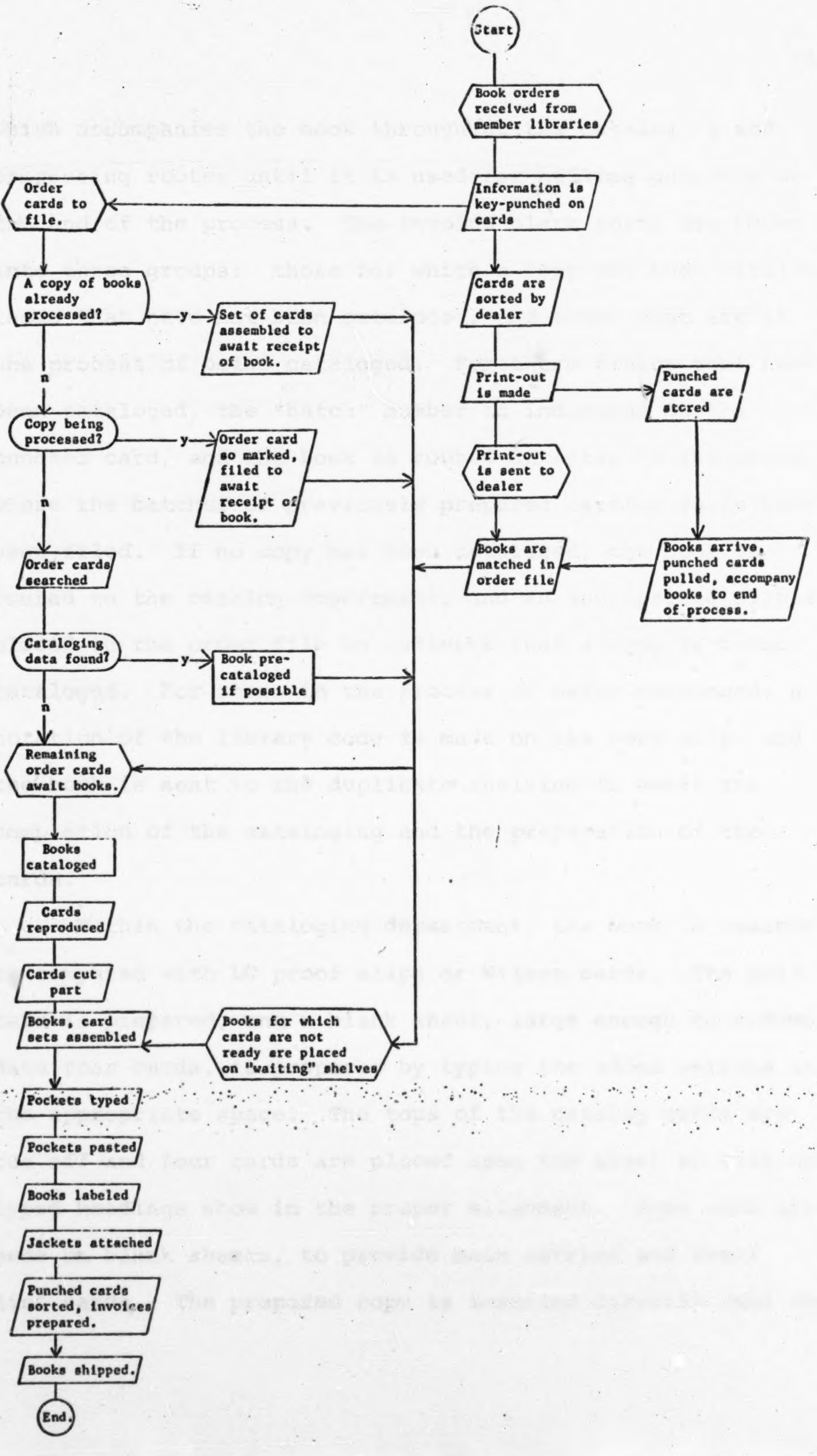
Three all-day sessions were held in March, 1964, to develop the cataloging code, each section to be approved by a majority of all participating libraries. Thus the cataloging and processing procedures were derived entirely by group action rather than by an arbitrary code being presented to the contracting libraries as a fait accompli. There were compromises on many levels and of varying significance, as the code was developed through a series of debates that involved everything from author entry to book stamping and labeling. The resultant code was one in which no one was completely satisfied, but which everyone in the group felt was workable.

In April, 1964, the Center started a trial run with six libraries participating, and the full Center operation went into effect on May 1, 1964, with 35 libraries participating, seven of these being school libraries. Although complete records have not been kept for the first year of operation, shipments of processed books to member libraries have ranged from 2,500 to 6,400 volumes per month, with a production goal of 8,800 per month. The staff of the Center consists of the equivalent of about 17 full-time positions, when operation is at the optimum level.

Description of the Center's Processes

The member libraries assemble their book orders on three-part forms furnished by the Processing Center. One form is submitted to the Center; the others remain with the individual library. The ordering information is key-punched on cards at the Center, and at this time a dealer code is added to indicate the source from which the book is to be purchased (important only in the case of special juvenile bindings). The punched cards are then sorted by dealer, and a print-out is made of the order. The print-outs are forwarded to the proper dealer twice weekly. The punched cards are then filed under the order number pending the receipt of the books and invoices. Chart I graphically illustrates the work flow at the Center, and the shapes used in the chart are explained on pages 126 and 127.

When the books arrive, they are checked against the invoice; the punched cards are pulled; and the order number, library number, and net cost are noted on the punched card, Chart 1 PROCESSING CENTER, Flow Chart.


Start
Book orders received from member libraries
Information is key-punched on cards
Order cards to file.
Cards are sorted by dealer
A copy of books already processed?
y
Set of cards assembled to await receipt of book.
n
Print-out is made
Punched cards are stored
Copy being processed?
y
Order card so marked, filed to await receipt of book.
Print-out is sent to dealer
n
Books are matched in order file
Books arrive, punched cards pulled, accompany books to end of process.
Order cards searched
Cataloging data found?
y
Book pre-cataloged if possible
n
Remaining order cards await books.
Books cataloged
Cards reproduced
Cards cut part
Books, card sets assembled
Books for which cards are not ready are placed on "waiting" shelves
Pockets typed
Pockets pasted
Books labeled
Jackets attached
Punched cards sorted, invoices prepared.
Books shipped.
End.

which accompanies the book throughout the cataloging and processing routes until it is used for billing purposes at the end of the process. The invoice clerk sorts the books into three groups: those for which a copy has been cataloged, those that have not been cataloged, and those that are in the process of being cataloged. For those titles that have been cataloged, the "batch" number is indicated on the punched card, and the book is routed directly to the point where the batches of previously prepared catalog cards have been filed. If no copy has been cataloged, the book is routed to the catalog department, and an appropriate slip is placed in the order file to indicate that a copy is being cataloged. For those in the process of being cataloged, a notation of the library code is made on the work slip, and the book is sent to the duplicate shelving to await the completion of the cataloging and the preparation of the cards.

Within the cataloging department, the book is searched or compared with LC proof slips or Wilson cards. The unit card is prepared, and a blank sheet, large enough to accomodate four cards, is prepared by typing the added entries in the appropriate space. The tops of the catalog cards are cut off and four cards are placed upon the sheet so that the typed headings show in the proper alignment. Some runs are made on blank sheets, to provide main entries and shelf list cards. The prepared copy is inserted directly into the

Photo-Direct Camera Processor (which is manufactured by the Robertson, Photo-Mechanix Company of Des Plaines, Illinois, and distributed by the Addressograph-Multigraph Company). This photo operation produces a multilith master stencil, which is then run directly on card stock on a multilith offset. The resultant copy, in a "four-up" form, is cut by an automatic paper cutter. The cards, usually overproduced in amounts of five, eight, or twelve sets, are sorted into proper sets, assigned batch numbers, and filed numerically by these batch numbers to be matched with books. One card is placed in the order file to indicate where the appropriate catalog cards can be found for incoming books and to serve as a guide to those volumes stored on the duplicate shelves.

After the books are matched with the appropriate catalog cards (three extra unit cards are included for use by the individual library for shelf lists or other purposes), a book card, pocket, and spine label are typed and pasted in the book. A plastic jacket is applied, and the books are sorted into bins for shipping to the proper library. The punched card is removed and sent to the billing office where invoices are prepared for the individual libraries.

Difficulties in Operation

Since the largest output in any one month up to July, 1965, was 6,400 volumes and the production goal was 8,800 volumes, it is obvious that the Center was behind in the processing of books.[2] It may be useful to enumerate the reasons for those delays. It is relatively easy for a nonparticipating observer to remain aloof from the situation and to point out mistakes that were made. There were errors in estimates and mistakes in establishing operations; no one was more aware of these than the group comprising the Oak Park Book Processing Center. Confronted with such a volume of work and the problems of organizing the work flow, training the staff, solving the financial difficulties, and developing the proper use of data processing machines, there was bound to be delay in getting properly under way.

One of the major obstacles in developing a smooth flow of operations at the Center was the acceptance of processing for several school libraries. Two of these were new high school libraries which wanted complete basic book collections purchased, cataloged, and ready to be used by the students in the fall of 1964. Contracts were signed with these libraries, and the obligation involved handling about 3,000 titles in each instance. This design was attractive from the Center's viewpoint, as the cataloging information was readily available and would only need to be transposed to cards--it seemed that handling this material would provide an excellent source of operating capital for early financing. The project's appeal proved to be a delusion since the titles ordered in no way parallelled those ordered by public libraries and practically resulted in the establishment of a sub-processing operation within the larger unit. This school situation, plus the sheer volume of work in the beginning, delayed work for, and payment from, the public libraries. These school contracts have now been nullified by mutual agreement and there may be a guideline here against mixing purchases for two types of libraries, at least until such a center is operating effectively.

---

[2] "New Illinois Processing Center is $31,000 in Debt; Has Backlog," Library Journal, LXXIX (December 15, 1964), 4786, and reply "Equal Time for Smaller Debt," by Lester L. Stoffel, Library Journal, XC (February 1, 1965), 414. Stoffel pointed out that the debt was only $1,900.

Although the contracts state that a deadline for ordering books could be instituted by the Center, this was not done. By permitting the individual library to order any title at any time, the Center lost a great deal of the effectiveness of such cooperative efforts, that of dealing with duplicate volumes at one time. There has been no time limit on when the book should or could be ordered without penalty. In theory it would be possible for any individual title to be ordered, processed, and handled 27 different times; the only job not repeated would be the actual cataloging. The contract states that a library not complying with a schedule as established by the Center may be charged an additional ten cents per title. Since no schedule was established, processing delays were inevitable. A committee was formed in March, 1965, to present a plan for avoiding this situation, and a report was to be presented to the entire Center membership at a later date. A frequent pattern of operation is to give a library about two weeks after the appearance of any book selection aid in which to place an order for given titles,[3] with reasonable assurance of prompt delivery. If such a program were to be approved by the members, it should do much to speed the service.

One problem which no one could have solved accurately was that of determining how many sets of catalog cards should be produced for each title. Under the reproduction system used, it was not feasible to save the master stencils and rerun them, and so the Center's administrator had to estimate the number of card sets to be run in each case. This has resulted in a large number of overruns, since the libraries did not duplicate titles as much as had been anticipated. As a result, the difficulty of filing and finding card sets when they were needed was increased. By drastically cutting the number of runs, the Center has been able to alleviate the over-production and waste to some extent, but the situation cannot be entirely eliminated until enough statistical data have been compiled to indicate a norm for catalog card production on the various types of books.

---

[3] Mary Lee Bundy, "Public Library Processing Centers: Report on a Nationwide Survey," in Gretchen Knief Schenk, ed. Public Library Service in Missouri; A Survey. (Jefferson City, Mo.: Missouri State Library, 1962), p. 277.

This problem seems to be common in the operation of processing centers, and not enough is known about its solution. Wendel, writing about the processing center at Orlando, Florida, notes:

> Catalog cards in addition to those needed for a title already ordered and being processed are printed and filed in the over-run file for future use. The value of the over-run file is recognized; however, the Administrator is being more selective in determining the exact number of cards to be printed, because such factors as cost of supplies, salary costs, and space must be considered in justifying the continuation of the practice.*

The asterisk refers to a note by the editor (Esther J. Piercy) who emphasizes the point:

> This whole problem of over-running and stocking catalog cards is largely ignored in the literature on centralized processing centers, but it is one which may end by making or breaking the whole operation. We need much more thought and study and publicity on this point.[4]

This is an area in which someone conversant with probability theory could make a contribution.

Visits to six member libraries, plus telephone interviews with all of the public libraries contracting with the Center, show that the cataloging done by the Center is more complete than that done by most of the libraries before subscribing to Center services. A high percentage of nonfiction books cataloged by the Center have subject headings added to bring out facets of the books that were ignored by the Library of Congress catalogers, as well as by the Wilson Company.

---

[4] Wendel, op. cit., p. 75.

To determine the percentage of Library of Congress cards or Wilson cards that were changed in the cataloging process, a random sample of cards was checked in the batch file. There were twenty-three sections of book shelves used for filing the batches of over-run card sets. Each section contained eleven shelves, and each shelf held ten trays of batches. The first batch in every tray on the fourth shelf was checked, as was the last batch in every tray on the seventh shelf. This meant a total of 460 batches were checked. Within these batches there was found a total of 134 Library of Congress cards or Wilson cards (29 percent) that had been photocopied. The remaining cards had been completely typed in the cataloging department. Of the cards that had been directly photocopied, 80 or 60 percent, had been changed so that the original tracings had been covered and new tracings retyped.

In addition, the Center has undertaken a regular and extensive program of preparing "see" references where required. Although the method of checking indicates which cross references have been prepared, there is no way of indicating which library has received them; consequently, there will be an increasing amount of wasteful duplication in the future. Many of these libraries did not prepare cross references so extensively, and many were not adapting catalog copy received from commercial sources but merely accepting it as purchased. If the cards were changed, it was toward a simpler rather than a more complex form--a classification number was shortened, or a subject heading was omitted or simplified.

Several of the member librarians who were interviewed stated that they discarded some of the extra subject headings prepared by the Center because they were extraneous. It was noted that many of the additional subject headings were subdivisions of a larger heading, so all would file near each other in a small public library, thus providing repeated references to the same book under essentially one access point in the catalog. As the cataloging code calls for a title card for each book, one might suggest that a subject approach from different terms might prove more helpful. Juvenile books, also cataloged in this fashion, are known to have a short life, and although full cataloging may be desirable from a theoretical standpoint, it is open to question on the basis of economics. Few of these libraries had trained catalogers prior to joining the Center, and if we accept the precept that library training and experience are necessary or conducive to good library practice, then we can only assume that the Center's cataloging is generally of a higher professional quality than was that previously done by the independent library. This style of subject indexing is helpful in smaller public libraries which do not have other means of subject access to materials; it is doubtful, however, that the Center can continue to provide this type of full cataloging in view of the volume of work expected and of the backlog that has developed. It appears that some compromises will have to be worked out with the member libraries, perhaps even a temporary acceptance of LC and Wilson cataloging in order to achieve current status and maintain an even supply of titles.

Other difficulties were found in locating and training staff, evolving the proper work flow, integrating the data processing equipment into the system, and coping with the sheer weight of orders. Some libraries accumulated book orders in anticipation of the effective date of the contracts while other libraries sent in books already on hand waiting to be processed. Initially planned to handle 60,000 to 70,000 volumes per year, the actual rate of orders soon approached 100,000 on an annual basis.

Corrective Steps Taken

Besides the corrective steps already described, the Center has taken additional measures in an effort to catch up with current demands. Alex Ladenson, Assistant Librarian in charge of technical processes at the Chicago Public Library, was retained as a consultant and suggested many improvements in work flow and procedures, and some of these suggestions were implemented. The Center also retained the part-time services of a management consultant, to make suggestions concerning current problems and to be available when the occasion demands.

One of the most constructive steps taken was to declare a ten-week moratorium on book orders. Decided upon with the concurrence of the member libraries, this period from February 15 until May 1, 1965, enabled the Center to devote intensive effort to clearing the backlog of books that had developed and to fulfill final contractual obligations to the school libraries. Besides providing time for intensive evaluation of operations, this period also permitted the member libraries to bypass the Center and place orders directly with book suppliers in order to expend their remaining book allocations before the end of the fiscal year, which was April 30 for most of them. The moratorium agreement stipulated that the member libraries could continue to submit their book orders to the Center during that period. It was the Center's desire to have the agreement on time limit for orders settled by the end of that period so that it could be accepted by the members. When book ordering resumed, the Center expected to have cleared the backlog and, having instituted the corrective measures described, anticipated keeping abreast of the tide.

A report by the committee assigned to establish a deadline date for orders was presented in May, 1965. The recommended procedure, accepted by the contracting libraries, allows the librarian 20 days after the appearance of the chosen book selection aid to submit orders for adult books to the Center. Although there is no financial penalty for late orders, the books so ordered would not receive priority in processing. Those books ordered by the deadline method take precedence over other processing. Since the Center is now able to pre-catalog many of these titles, there is a minimum of interruption and delay.

In February of 1965 the director of the Center and the administration of the Oak Park Public Library mutually agreed that a change in leadership at the Center might benefit both parties. The director had struggled valiantly to place the Center on a current basis but the organizational problems were too great for one person and it was agreed that a fresh approach was needed. The search for a suitable successor had not been successful to February, 1966.

During the summer of 1965, the present staff of the Oak Park Public Library, aided by a management consultant, has been able to effect dramatic changes in the operation of the Center, and has placed it on a current basis. The tremendous backlog of books has been cleared in a most impressive manner. The Director of the Oak Park Public Library, the head cataloger, the processing supervisor, and the management consultant cooperated in a thorough study of every function in the operation and changed many procedures until the work began to proceed regularly. For the first time, work flow analysis and room layouts were made, and changes were instituted in the routines for ordering, cataloging, presearch, invoicing, unpacking and routing, and physical processing. Some of the more effective changes are described below.

A five-part order form has replaced the three-part form used previously. Still completed by the member libraries, which retain two copies of the form, the three copies received by the Center are distributed to the order and invoice departments. In the order department the order slips are sorted and stamped for the jobber, and the slips are sent out immediately; the transfer to punched card records is no longer done. The order slips are now being filed by title, rather than by author, as this format seems to cut down clerical errors and speed work by the filing clerk.

Books are now pre-searched as much as possible so that card sets may be ready when the books are received. This was always a desired procedure, but the work was never current enough to permit its effective consummation. The use of the extra order slip facilitates the preparation of invoices to the member library, as the slips are shipped with the books.

The major changes in the processing operations involved the rearrangement in the sequence of activities. The former space devoted to the operation was approximately 5,000 square feet; this has subsequently been reduced to 3,940 square feet due to a more efficient layout of operations--the first time this has been done on paper and transposed into actuality.

The administrative organization of the Center has not been radically revised, but a statement of responsibilities and duties at each level has been prepared, which provides a clear line of authority for each department. Three distinct principal areas have been established, consisting of clerical, cataloging, and processing. The supervisory responsibilities for each "working supervisor" have been set forth. One of these duties as stated is to conduct cost, time and statistical studies; the lack of such information has thwarted attempts to make decisions based on concrete facts. The work of the three departments has been stated explicitly.

Costs of the Center's Processing

By cost accounting methods, some exact terms of unit costs at various production levels or goals have been projected and specific figures concerning the increase or decrease of labor costs at each level are now available. Estimated future costs, provided by the Center as formulated in the summer of 1965, are presented in Table 4. The present production goal is 250 books per day, and the estimated cost

TABLE 4

COST DATA, OAK PARK PROCESSING CENTER

	Cost	Cost Per Book at 5,500 Bks. Per Month	Sub Total	Percent of Total
Rent & Maintenance				
Building (Rent)	$900.00/month	.164		
Postage	13.00 "	.002		
Offset (Rent)	90.75 "	.018		
Photo Direct (Rent)	102.00 "	.019		
Cutter (Rent)	15.50 "	.003		
Xerox (Rent)	25.00 "	.004		
Meter Charge Xerox	.035/copy	.038		
Maintenance Offset	34.50/month	.006		
Maintenance Photo Direct	10.00 "	.002		
Maintenance Cutter	5.00 "	.001		
Postage Meter			.257	46%
Telephone	45.00/month	.008	.008	1%
Supplies Direct				
Xerox	.015/copy	.016		
Offset	213.00/month	.034		
Photo Direct	72.00 "	.013		
Masters	15.50/M	.004		
Copease	130.00/month	.024		
Card Stock	10.50/M	.019		
Labels	2.50/M	.003		
Jackets	.07 each	.072		
Pockets (Printed)	11.40/M	.013		
Pockets (Plain)	5.24/M	.006		
Book Cards				
Special	4.60/M			
White	2.57/M	.004		

TABLE 4 (continued)

	Cost	Cost Per Book at 5,500 Bks. Per Month	Sub Total	Percent of Total
Brown	$3.48/M			
Tape (Jacketing)	1.75/roll	.007		
Glue	11.00/gal.	.002		
Carbon Ribbons	8.00/month	.001		
Tape (Shipping)	8.00 "	.001		
Boxes & Bags	8.00 "	.001		
Postage	185.00 "	.034	.254	45%
Supplies Indirect				
Paper	3.36/M	.001		
Multiple Order Forms	10.80/M	.022		
Stationery	65.00/month	.018		
Magazine Subscriptions	7.00 "	.001		
Kirkus	1.70 "	.001		
Proof Slips	5.00 "	.001		
			.044	8%
		Total	.563	100%

per book at this rate, as well as other projected rates, are shown in Table 5. The mean labor cost of $1.72 per hour, used in Table 5, column 4, was derived by summing the total weekly salaries of the entire staff and dividing by the total number of hours worked. As there are only two professional salaries included in this computation, it can be seen that the average clerical wage does not vary much from that described for the non-member libraries in Chapter XI.

During the fiscal period in which the data were gathered for this study--July 1, 1964 to June 30, 1965--46,913 volumes

TABLE 5

COST PER BOOK AT VARIOUS PRODUCTION RATES AND NUMBERS OF EMPLOYEES

1 Equivalent Number of Employees	2 Man Hrs. Per Day	3 Books Per Man Hour at 250 Per Day	4 Labor Cost Per Day at $1.72 Avg. Per Hour	5 Labor Cost Per Book at 250 Bks. Per Day	6 Labor Cost Per Book at 275 Bks. Per Day	7 Labor Cost Per Book at 300 Bks. Per Day
27	216	1.16	$370.00	$1.48	$1.35	$1.23
26	208	1.20	358.00	1.43	1.30	1.19
25	200	1.25	344.00	1.37	1.25	1.15
24	192	1.30	330.00	1.32	1.20	1.10
23	184	1.36	315.00	1.26	1.15	1.05
22	176	1.42	301.00	1.20	1.10	1.00
21	168	1.49	289.00	1.16	1.05	.96
20	160	1.56	276.00	1.10	1.00	.92
19	152	1.64	261.00	1.05	.95	.87
18	144	1.74	248.00	.99	.91	.83
17	136	1.84	234.00	.94	.85	.78
16	128	1.95	220.00	.88	.80	.74
15	120	2.04	207.00	.83	.75	.68
14	112	2.23	193.00	.77	.70	.64
13	104	2.40	179.00	.72	.65	.60

Labor Cost	$1.050	per book @ 250 bks. per day
Proposed Director $10,000 per year	.155	"
Rental and Maintenance	.257	"
Telephone	.008	"
Supplies Direct	.254	"
Supplies Indirect	.044	"
Total Cost Per Book*	$1.768	"

*Does not include new equipment.

were shipped from the Center. During the same period, $39,379.69 was received from the Illinois State Library to support the Center under the provisions of the Library Services Act. At the end of this period, the outstanding indebtedness of the Center was $75,209.34. None of these figures reflect the purchase price of books bought by the Center for its members, but are concerned solely with the cost of services rendered and equipment, rental owed the Oak Park Library for space and utilities, and for other services.

Although 46,913 books were shipped prior to June 30, 1965, payment of the processing charge for each volume had not been received by that time, so income from this source was established at $42,000.00, as payment had been received for approximately 40,000 of these volumes. There are three figures that must be considered in the total:

Payment for volumes processed:	$42,000
Money received from the Illinois State Library:	39,380
Extent of indebtedness at end of year:	75,209
Sub-total:	$156,589
Less cash on hand:	1,546
Total:	$155,043

Thus it can be safely stated that it cost $155,043 to process 46,913 volumes, or a cost of $3.30 per volume. These charges include all intangibles and the cost of obtaining new equipment by purchase or rental.

The fiscal plan for 1965/66 calls for the Center to be entirely supported by Federal funds. This budget anticipates a total expenditure of $196,720 to process 66,000 volumes, or a projected cost of $2.98 per volume. The monies received from the member libraries as payment for volumes processed will be used to retire the indebtedness incurred by the Oak Park Public Library during the first period of operation.

Each member library interviewed here seemed willing to make almost any sacrifice to ensure the Center's success. Despite the delays and other difficulties encountered, these libraries have waited for books, made changes in their existing collections, and accepted compromises in procedures. They were pleased that the services provided by the Center were improving in quality and in speed. Still imbued with the cooperative spirit, the member libraries are optimistic and hopeful; they want this contractual organization to succeed, and they have no desire to resume the cataloging task within their own organizations.

One other important change must be noted. A Xerox 914 photo-copying machine is now used to produce catalog cards with headings, while the Photo-Direct and Multilith is used to make the unit card. An experiment is being conducted to ascertain if the Xerox machine will not be suitable for the entire run of catalog cards.

The importance of this cooperative venture in Illinois at this particular time is obvious. A Plan for Public Library Development in Illinois has been worked out, accepted by the State Library and the Illinois Library Association, and its main features incorporated into a legislative bill which was approved by the Illinois General Assembly and signed into law by the Governor. Although the state plan does not mention processing centers directly, the cooperative programs and the library systems proposed in the plan would certainly encourage and encompass such developments.

CHAPTER V

DEVELOPMENTS IN MEMBER LIBRARIES

To ascertain whether member libraries were spending a disproportionate amount of time on the books and catalog cards after these materials were received from the Processing Center, a visit was made to each of six member libraries in January of 1965 for observations and interviews. These six libraries were chosen from the membership of 27 on the basis of their similarity to the non-member libraries selected for individual study. Had these libraries been doing a great deal of additional work to the finished products as received from the Center, the cost of this labor would have to be added to the basic processing charge of $1.20 per book.

Visits to Member Libraries

In general these visits disclosed that the librarians involved were not spending any more time than necessary with the processed books. They did not want to make changes; in fact, the attitude of those with whom the investigator talked was that the catalog was mainly a locating device, and they were glad to have the cataloging task completed by an outside agency. This was revealing in that it shows a definite trend away from the traditional concept of the card catalog as a subject index to the contents of the library and as an assemblage of various types of bibliographical and analytical entries. None of these librarians felt that local adaptations in the subject headings as placed on the catalog cards by the Center were necessary, although all of them intended to modify their own previous subject assignments to match those now used by the Center.

It was found, however, that the librarians were closely inspecting the work done by the Center. The pattern for this inspection had developed because a number of errors had been discovered in the Center's work. None of the librarians felt this close inspection was a permanent operation; they regarded it only as a temporary expedient while the Center was working out the problems in the formatory stage of its procedures.

Every librarian expressed himself favorably toward the descriptive and subject cataloging as well as the book classifications; they felt this phase of the work was adequate for local requirements. The mistakes mentioned as most glaring or troublesome were those of a typographical or clerical nature; the number of these errors varied, but no one felt they involved more than five percent of the receipts from the Center. Four of the librarians said there were no more errors in Center-processed materials than had occurred previously in work done in the libraries' own operations.

In the interviews conducted, as well as in the observations made in those libraries where the librarian had saved shipments to be opened and handled in the investigator's presence, it was learned that the librarian did little more than conduct the final inspection necessary in any book processing operation. The usual procedure on receiving shipments from the Center was as follows. The books were removed from the mailing cartons and sorted. Catalog cards were taken from the pocket, a cursory check was made to see that call numbers matched wherever they appeared, and the cards were checked to insure that a proper number of accurate cards had been received. The books were placed on trucks for immediate shelving while the shelf list and catalog cards were separated for preparation and filing, respectively. The order cards were removed from the outstanding order file, the date the books were received was noted, and the order card was set aside to await the receipt of the invoice. In one library the books too were held for the invoice, in case errors were encountered.

A serious criticism voiced by one librarian concerned the receipt of duplicate copies at different times. A given order for two or more copies would "frequently" result in the receipt of one copy only, which might or might not have the catalog cards included. These books were held by the library until the other copies were received, and this caused an inconvenient delay. This inconsistency was further compounded by discrepancies in the corresponding invoices, which might list one copy when two were sent, vice versa, or any of the combinations possible. Only one librarian mentioned this situation; however, it did seem inexplicable at the time, since the processing of duplicate copies simultaneously would be to the Center's advantage.

Another criticism was that books ordered as reference materials or as non-processed volumes, for special uses or staff orders, were often processed as circulating materials. The most serious concern of members at this time, however, was the extreme delay in the receipt of books. Each library visited had extensive outstanding order files, ranging from 500 to 800 titles, and each was concerned about the results of this delay upon their appropriation requests for the following fiscal year. Since the period of the interviews was near the end of the fiscal year, several of the librarians interviewed were buying books directly from a jobber in an attempt to spend available funds. This meant that they would have to process the books themselves, but the administrators involved were optimistic and assumed that this was only a temporary situation. This budgetary concern on the part of the librarians was certainly justified, since they would have difficulty in requesting increased book budgets when the accounts showed a large unexpended balance. Although the funds were encumbered, the city budget officials were interested only in monies actually spent.

Three of the six librarians interviewed in these initial visits had been doing the cataloging themselves, and the remaining three had been closely involved in it. All expressed the opinion that their time was much better employed in performing other activities and each expressed concern about the success of the Center. Only with extreme reluctance would any of these individual librarians again shoulder the cataloging task or accept it for his staff. In several cases, funds for book purchases had been increased in substantial amounts. This increase had brought these librarians and their boards to face the prospect of hiring additional staff, non-professional as well as professional. None of the librarians found it difficult to locate employable non-professionals; the recruiting of professional catalogers was a different problem.

Obtaining money for library materials in our educationally oriented society was not too difficult for these librarians, but setting up new positions to process this increased flow of material is difficult to justify to library boards in cities of this size. Salaries offered by these libraries could only approximate the beginning levels for library school graduates. The libraries offer little possibility for advancement and the only person likely to be attracted to such a position would be someone wishing cataloging experience in a small to medium-sized public library. Such persons are scarce in the library employment market. Year after year the Strout[1] articles point out that the need for catalogers far outstrips that in other types of library work, at least in terms of requests to library schools. In view of this situation, it is not difficult to see why librarians and their boards are intrigued with the idea of turning to an outside agency for help instead of attempting to seek and employ additional staff.

The pressure induced in the individual libraries, resulting from increased book funds, staff shortages and burgeoning service demands, was one of the key factors in putting the Center behind in the processing of current orders. A whole phase of the individual libraries' burden was passed on to the central agency, which now had to face the proposition of amalgamating the problems of 27 libraries into a workable scheme. Some librarians had accumulated orders until the contracts went into effect while several librarians immediately submitted their own arrearages in cataloging to the Center; books that they had put aside during the press of regular business or had found difficult to catalog.

These actions were understandable from the point of view of the individual librarian. The administration within the Center had encouraged these actions by stating they presented no particular problem, and the librarians had spent months of anxious planning for this time. Consequently, they had a high degree of expectancy for some immediate results from Center membership, but combining the ordering processes of various libraries and handling a higher volume than had been anticipated certainly compounded the difficulties of getting the Center into operation.

---

[1] Donald Strout, op. cit., p. 2747.

It was determined at this time that the measurement of processing activities in non-member libraries could be simplified a great deal from the process originally outlined in the study proposal. Conceptually, order work conducted by one office could reduce, in some measure, the sphere of paper and record-keeping necessary when twenty-seven public libraries are dealing with their respective book suppliers. Within the system under consideration here, order work was so similar in both non-member and member libraries that little could be gained by keeping records of these activities. During the visits to both groups of libraries, it was observed that the same type of records were kept; it mattered little if a library belonged to the Center--there must be a record of outstanding orders; invoices must be checked; there will be correspondence concerning delayed orders, although such queries may be directed to the Center rather than to a supplier. This is not to say that, given a more sophisticated ordering system that had been in operation longer, some of these records might not be refined by the use of machine accounting systems, by a deadline for placing orders, and by other streamlined forms. But this is speculation, and it is difficult to pinpoint those exact activities in the realm of ordering books in which a substantial amount of time could be saved. A method of coordinating book purchases with duplicated, dated lists sent to each library would certainly have some time-saving effect. However, for this system at this time, there were no great differences in the order records for member or non-member libraries.

Spatial Aspects

An interesting aspect of the visits to the member libraries was the result of the observations concerning space requirements. The opportunity to utilize the space formerly devoted to processing is often advanced as an argument for joining a processing center. This phase of the situation deserves special consideration.

In four of the six libraries visited, no provision had been made for a work area for cataloging or processing--the work had been done in the librarian's office. Lest the term "office" be misleading, it should be stated that these were not rooms designed as offices, but were merely rooms taken over for that purpose as suiting the personality of the librarian or as an expedient for such use. In the other two libraries, a certain amount of space had been allocated to the processing of books and could be adapted for other uses. It is necessary to point out, however, that contracting to have books cataloged and processed outside the building does not automatically relieve a library of a certain spatial commitment for this purpose, nor does it add X number of square feet available for other uses.

The extent of space made available hinges a great deal upon the local situation and the nature of arrangements with the processing center. In this particular contractual arrangement, there was an inherent limitation in the potential of additional room. Having committed 75 percent of its annual book budget to acquisitions through the Center, the library would still have to provide staff and accomodations for materials purchased with 25 percent of its funds, to be handled internally. This means that a library with a $15,000 book budget could still expect to process $3,750 worth of material. Member libraries anticipated that this material would consist of reference sets, serials, continuations, subscription items, etc. While three of the librarians interviewed had committed most of their funds to the Center, reserving only a minimum to purchase continuations, space would still be required to process gifts, government documents, pamphlets and ephemera not received through the Center. And, of course, mending and binding preparations must still be carried out. In addition, some table space or area must be reserved to deal with shipments of books as they are received from the Center, to be inspected and checked with the order files and shelf listed.

In those libraries where the librarian's office had been the focal point for dealing with the total processing function, the act of joining the Center had little effect on spatial conditions. These libraries had had no room prior to joining; work was done wherever table space was available. The only difference now was that the librarian's office was less crowded. The two libraries that had processing work rooms were still using them for this purpose although some of this space will probably become usable for other purposes as work at the Center progresses. At this time, however, joining the Center had made no difference in the total space given to processing in any particular library after a year of membership.

Telephone Survey of Member Libraries

In order to validate the information gathered from the personal visits to the six member libraries, and to warrant presentation of the data as representative of the entire group, a brief telephone survey was conducted with the whole Center membership. A questionnaire was mailed to the members beginning on March 1, 1965; three were mailed each day for nine days. On the 8th of March, one week later, the investigator began making three telephone calls each day to those who first received the questionnaire. The majority of the calls were completed on schedule, March 18, except for contacting two librarians who were on vacation. The interviews were completed on March 23.

A satisfactory interview was conducted with each of the twenty-seven librarians, or the cataloger in the library, and this insured full information on certain critical points where it was considered important to get the complete reactions of the members. The questionnaire, reproduced herewith, consisted of seventeen items. Another question concerning the practice of making cross-references was asked informally at the end of the interview. A covering letter was enclosed with the questionnaires, indicating to each respondent that a telephone interview would follow. The questionnaire and the covering letter appear as Figure 1.

Questions one, four, and seven were designed to be related. The responses elicited, when compared, seem to reflect a positive judgment on the Center's work. Eleven of the 27 librarians did have mental reservations about complete acceptance of cards and books completed by the Center, and replied "yes" to question one, which asked them if they intended to change cards and books done by the Center, while sixteen replied "no." In response to question four, only seven had made changes in subject headings as received from the Center, and eight had changed classifications. It is worth noting that of the seven librarians who

FIG. 1: LETTER AND QUESTIONNAIRE TO MEMBER LIBRARIES

LIBRARY RESEARCH CENTER
428 Library

March 1, 1965

Dear ______________________:

The Library Research Center of the Graduate School of Library Science is conducting a comparative study of the costs of cataloging for libraries connected with the Oak Park Book Processing Center and the costs for non-member libraries.

Within a few days I will be telephoning you to discuss the topics on the enclosed list. In order to take as little of your time as possible in obtaining the needed information, I am sending you the list in advance, and hope you will be able to give some thought to the answers prior to my call. Many of the questions will require only a "yes" or "no" response. Thank you for your cooperation.

Sincerely yours,

Donald Hendricks
Research Assistant

DH/lmc
encl.

FIG. 1 (continued)

LIBRARY RESEARCH CENTER
428 Library

UNIVERSITY OF ILLINOIS
Urbana, Illinois

QUESTIONS ON BOOK PROCESSING CENTER MEMBERSHIP

1. When your library joined the Oak Park Book Processing Center did you anticipate making changes in the books and cards when received? Yes___ No___

2. Did you use Cutter numbers before joining the Center? Yes___ No___

3. Do you find the omission of Cutter numbers an inconvenience? Yes___ No___

4. Have you made local adaptations in subject headings? Yes___ No___

Have you made local adaptations in classification? Yes___ No___

5. Have you gained any space to use for other purposes? Yes___ No___

If YES, how many square feet? ____________

6. Is the discount gained more than you were receiving? Yes___ No___

If YES, how much more? _______________

7. Generally, is the descriptive cataloging done by the Center acceptable? Yes___ No___

Are classifications acceptable? Yes___ No___

Are subject headings acceptable? Yes___ No___

8. Do you feel that the main purpose of the card catalog in the public library is to serve as: A. A locating device? ___ B. An index to the contents of the library? ___

FIG. 1 (continued)

9. Are there decisions in the cataloging code approved by the group of libraries contracting with the Center that you have difficulty accepting? Yes___ No___

If YES, what are they?

10. Has joining the Center enabled you to start or plan any increased services to the public?

11. Do you feel that the price charged by the Center is more or less than the prior costs in your library for these operations? More___ Less___

If you had a rough estimate as to the costs of these previous operations, can you state what they were and how they were derived?

12. Are there aspects in the operation of the Center that you would like to see changed? Yes___ No___

If YES, what are they?

13. If there are any errors noted, are they of a typographical nature, or more serious in substance, such as main entry, subject headings, etc.?

14. Which single phase, if any, in the way the Center operates causes you the most difficulty?

15. What major benefits have you derived from joining the Center?

16. We would like to know the nature of the cataloging staff before your library joined the Center: i.e., professional training, time alloted, etc.

17. Did you anticipate seeking additional cataloging help in the near future?

changed subject headings, three stated that most of their changes had involved simplification or elimination of headings. They felt they did not need as many subject headings as were sent, or those sent were too technical. Although one-fourth of the member librarians stated they made changes, they were practically unanimous in their response to question seven which asked them if they were generally satisfied with classifications, subject headings, and descriptive cataloging. All librarians said classifications were acceptable, and only one librarian felt that the descriptive cataloging and subject headings were not generally acceptable.

Questions two and three were, perhaps redundant, although it was not discovered until a later time that information on the use of Cutter numbers was available from other sources. Only one library had used Cutter numbers throughout the collection, while five libraries had used them only on biography. Four of these librarians felt that the omission of Cutter numbers was a distinct inconvenience. As the majority of librarians voting on the catalog code decided that the full surname of the biographee would be used by the Center, that decision was acceded to by the other libraries. Several of the librarians expressed dissatisfaction with the full name, especially as it seemed to cause problems in labeling and spoiled the appearance of catalog cards when the name was long. The last-name policy was also used with biographies of musicians, artists, and sculptors, which, according to the adopted code, would be classified in their respective places in the 700 schedule of Dewey.

The response to question five further substantiated the commentary on space made previously--twenty-five libraries have not gained any space, while two reported that they had. Some of those responding negatively felt that they might gain some space when the Center becomes fully operative, but it was simply too early to estimate what might result from this factor.

Question eight was designed to elicit what function these librarians felt the card catalog served in their particular library, and how they felt the patrons used the card catalog. Eleven felt the catalog served as a simple locating device for books. Five felt it was used as an analytical index to the collection, and eleven said it served both purposes. Five of those replying that it served both purposes felt that it served the public as a locating device and the staff as an index. They felt that if a patron was using the catalog to any great depth or detail he would usually ask for staff assistance anyway. One librarian said that the catalog in that particular library was used as an index only by the local college students. As the Center is committed to doing analytics for full-length drama and collective biography (both adult and juvenile), the need for depth indexing should be satisfied in those libraries.

The issue in question nine was to determine what items, if any, in the code really bothered the librarians and catalogers. Although there were minor problems that caused some apprehension, eleven librarians replied there were no major concerns; they have accepted the code in the spirit of cooperation and would change procedures in their own libraries to conform with Center practice. The remaining sixteen librarians had also accepted the code in the same spirit but had fairly strong objections to some features contained in it. The two exceptions most frequently voiced were the classification of biography and the detailed or changed classifications within the 800's, each mentioned by seven librarians. The dissatisfactions with the biographical classifications were occasioned by the use of B, lack of Cutter numbers, use of full surname, and the placing of artists, etc., in the 700 classification. The dissent concerning the 800's involved the classification code for anthologies, criticism, period divisions, and the divisions of Shakespeare. Several librarians commented on the length and detail of some of the 800 classification, feeling that it was carried out too far. These criticisms were balanced by those who liked the code; several librarians felt that the 800's classification was the best feature of the code and one even suggested that it be adopted state-wide. These people based their satisfaction with the code in general on the point that their libraries were going to grow, and it was good to have a consistent, stated approach to forestall future problems in classification and locations of materials.

Question ten, concerning the promotion of new services to the public, again elicited the general response that it was too early in the program to have made any progress in this direction. Fourteen librarians reported that they had started, or more importantly, planned to begin new services; 13 librarians said they had not been able to do either. Those public services mentioned most frequently were additional reference--seven libraries; vertical files, four libraries; telephone reference, two libraries; public relations, three libraries. Mentioned by one library each were projects (such as a record collection) and increased hours, while some behind-the-scenes work such as weeding, marking indexes, book lists, and up-dating the card catalog was listed.

Those who had no specific new services in mind felt that contracting with the Center had just enabled them to keep up--they lacked staff and time to do the minimum library tasks.

On the critical matter of the cost of the Center service, only three librarians felt that the $1.20 per volume charged by the Center was more than their prior cataloging cost, one librarian said it was the same. Two of these librarians said the cataloging had been less costly because of the labor situation; they had been able to hire staff at unusually low salary and wage rates. Eleven libraries reported that they had no idea what the previous cataloging costs were. Twelve librarians were certain that the Center charges were less, but only six had a definite figure on which to base their statement. These figures were $1.25, $1.28, $1.30, $1.38, and two libraries reported $1.50. Only one of these costs, that of $1.38 per volume, was derived by means approaching that of a scientific method. Most respondents seemed to feel the cost was fair, although several expressed a hope that future charges could be reduced when the Center became more efficient.

Question twelve was probably the most misunderstood of the queries put to the librarians. Invariably the response would concern the delay in the delivery of books. The interviewer soon learned to explain to the librarian that here he referred to internal operations of the Center, such as ordering, billing, labeling, etc. Upon this clarification, eleven librarians said there were no aspects in the Center's operation that should be changed. Sixteen librarians had concrete criticisms and suggestions to improve service. Among these criticisms were: no deadline on the placing of orders, four; no order reports, six; inaccuracy in billings, four; discontinuance of the placement of property stamps on books, four (this was a service undertaken and then dropped by the Center); book club subscriptions held up, three. Other criticisms voiced by one librarian each were: too much time spent on cataloging, too little efficiency, and poor reproduction of catalog cards. It should be noted that each librarian, in response to either question twelve or thirteen, stated that the services of the Center had improved, especially in aspects of card reproduction and assignments of "J" and "Y" designations; they all anticipated that the operational aspects would improve and errors would be reduced further.

In response to question thirteen, three librarians stated there had been no errors, twenty stated that the errors were of a clerical or typographical nature, and two said there had been errors of substance in main entry, subject headings or classification. The complaints voiced most frequently concerned typographical mistakes and clerical errors involving the use of a "J", "Y" or "E" above the call number to indicate special shelving requirements. This situation, improving as the Center processes more books, was caused in part by the confusion in handling books for school libraries, as they accept no such shelf designations. There seemed to be a great deal of difficulty in forming a consistent method of placing, or checking, these letter devices in each of the various places they appear on the book. Three libraries said that invoices were often inaccurate, but other errors were each noted by only one librarian. Several people pointed out that the errors discovered were no more frequent than the mistakes made by their own processing staffs.

The response to question fourteen was unanimous; twenty-seven librarians stated that the delay in delivery of books was the one aspect of Center service that caused their libraries the most difficulty. The problems resulting from the delay stem from the patrons' failure to obtain new and popular titles, with consequent pressure from the library board; books going out of print before librarians can purchase them; funds not expended before the end of the fiscal year, so it appears to the city officials that the library has no need for, or an inability to handle a larger book budget. Six librarians mentioned the lack of order reports as also being troublesome. This is quite frustrating and is one of the most frequent complaints of order librarians dealing with any jobber. When a library is not notified of the status of a delayed book, it has no opportunity to try elsewhere for the title, has no idea when, or if, it will arrive, and has encumbered the price of the book which prohibits using the money for other titles. This problem is complicated by placing orders with the Center; not given order reports by the Center, the librarian has no way of knowing if the Center has received the book. If the library places an independent order for a title, then subsequently receives it from the Center, a wasteful duplication has occurred. Four librarians mentioned that there was no discretion or priority given to books processed. A title that was obviously going to appeal to a limited audience would be processed and delivered relatively soon after orders were placed, while books likely to have mass demand, and indicated as having reserve requests and marked as rush orders, would be delayed. Probably some method of dealing promptly with rush orders and best sellers ought to be worked out--this would lessen the patron's cause for complaint concerning lack of recent, popular titles.

When asked what benefits they had received from joining the Center, eight librarians stated they had, as yet, failed to achieve any benefits. Nineteen librarians had received some benefits; those specified were: released time for other activities, eleven; books ready to go on the shelf with catalog cards also ready, four; professional cataloging, three. Three librarians felt that the catalog code itself was a benefit, as it could provide a consistent approach to cataloging in the area.

Summary of Questionnaire

The results of the visits and telephone interviews conducted with member libraries and librarians reveal patterns of operational difficulties and successes that are probably not too different from those likely to be encountered by any library participating in a new processing center. As Bundy[2] reported in her national survey of centers, delay in receipt of new books and other difficulties similar to those mentioned here were common in centralized processing functions.

The particular Center studied in this investigation may have had more problems than might normally be expected, for the reasons noted in Chapter IV. No one would condemn the Center for its ambitious program, but the resultant volume was perhaps more than had been bargained for.

The most positive factor about the present and future of this Center is the members' attitude toward its potential and the necessity of its success. To a man and despite the difficulties encountered thus far, the librarians expressed their willingness to remain with the Center in the formative stage and their desire that it should succeed. Although somewhat subjective, as there were no questions directed toward a ranking of attitudes as such, the unanimous positive attitude of members for the Center must be reported. The librarians spoke frankly of the problems and disappointments encountered, but all were adamant in their expression of the necessity and value of the service. Several librarians pointed out that Center membership had been valuable in the larger context of awakening the library board and staff of the potentialities in inter-library cooperation.

---

[2] Mary Lee Bundy, _op_. _cit_.

Whatever the future of this Center, it will never lack cooperative spirit and mutual tolerance between members and administration.

CHAPTER VI

DESCRIPTION OF PROCESSING PROCEDURES: TIMES AND COSTS IN NON-MEMBER LIBRARIES

Several factors were influential in determining the presentation of the descriptions of cataloging and processing procedures in each of the individual libraries. The study was not designed to measure or describe micro-motions or work-area relationships; however, process specifications had to be exact enough to furnish a basis for comparability of data between libraries and to indicate to the reader those operations comprising each activity. Consequently, the work flow was divided into approximately twenty-one major groups in the case of each library, and measurements were recorded in terms of the time taken to perform the total operation.

It is possible to measure these tasks in lesser fractions, in terms of their smallest component. The pasting of a pocket in a book, for example, could be measured in several parts such as reaching, opening, grasping the brush, applying paste, wiping, closing, and replacing. A recent study has made a detailed report of certain such clerical operations.[1]

---

[1] Henry Voos. Standard Times for Certain Clerical Activities in Technical Processing (Dover, N.J.: Technical Information Branch, Picatinny Arsenal, 1964).

Such fragmentation was not considered necessary for this study. The pasting of a pocket is considered as one unit of work, and was measured accordingly. In this, as in other operations, the record includes all actions performed in that activity from the second the book is picked up by the operator until it is replaced. The measurements were confined to broader operations; when variant or combined operations occurred, they are described as such.

The time record is composed of two series of measurements, those made by the library staff and those made by the investigator. It should be noted that the form on which the library staff was asked to keep their records was designed as a general schedule suitable for all libraries. On the explanatory sheet defining the categories of work operation (Figure Two) each category was designated as an "activity." The data gathered by each library staff were returned to the investigator who placed them on punched cards. No analysis of the data was made by the investigator before the card deck was turned over to the computer programmer. At this point the investigator went into the field, drew up flow charts for each library, analyzing the way the work was actually structured, and made his own measurements. In fact, the work done by the computer was so long delayed due to operational problems that the investigator had completed his observational trips and analyzed his results before

FIGURE 2: DEFINITIONS OF ACTIVITIES IN PROCESSING

A. Cataloging

1. Search card data: Comprises the locating of LC card numbers, Wilson card data, or the appropriate card to be copied.

2. Request cards: Includes the typing, arranging, stamping, and filing of necessary records.

3. Match cards--books: Sorting cards to match them to appropriate book, pulling books from storage shelves, filing remaining cards in the order file.

4. Catalog: Descriptive and subject cataloging of titles with LC or other commercial cards--Comparing card with book, making corrections, determining and establishing additional added entries, determining acceptability of subject headings, determining cross references.

5. Classify: Determing classification and book number.

6. Author verification: Searching proper names, dates, or establishing appropriate main entry for books that do not have LC or commercial cards available.

7. Catalog: Descriptive and subject cataloging of titles without cards; physical description of books, determining added entries, subject heading, cross references, etc.

8. Classify: Determining classification and book number.

9. Prepare master card: Actual typing of card or form to be followed in preparation of stencil or subsequent card typing.

10. Revising cards: Proof reading, determining if directions for shelf listing and tracings have been followed.

11. Making card changes: Correcting minor errors on the cards.

12. Shelf listing: Stamping shelf list, stamping book, indicating copy numbers, etc.

FIGURE 2 (continued)

B. Mechanical Preparations

13. Reproduction of card sets: Actual time of operator in reproducing cards by stencil or other mechanical means.
14. Type cards--pockets: Typing call numbers, copy numbers, etc., on book cards and pockets.
15. Mark call numbers: Marking on spine of book, penciling in book, etc.
16. Paste: Pasting of book labels, pockets, plastic jackets, etc.
17. Stamping: Any property stamping on interior or exterior of book.
18. Plastic jackets: Application of plastic jackets to dust wrappers.
19. Other: Includes any processing activity not described above.
20. Non-processing time: Includes time spent at public service desks, coffee breaks, personal visits, telephone calls, any activity that cannot be ascribed to the technical processing function.
21. Supervision: Represents time spent in giving instructions, answering questions and generally directing the work of others.

the data assembled by the library staffs were returned in useable form.

Thus, the work operations in the flow charts were designated as "steps" and the comparison of data is between the "activities" recorded by the library staffs and the "steps" recorded by the investigator. If one were to design a study for the operations in a single library it would be relatively simple to avoid this complexity by interviewing the staff and setting forth the structural concept of the work flow prior to time measurement. When dealing with a number of institutions, however, the instruments designed must be useable by them all; the investigator must deal with the requirements of time, distance, and inexperience and interpolate the results.

Explanation of Tables

Each cataloging and processing operation is described for each library and is accompanied by a summary of the time records obtained. In addition, there is one chart and three tables for each library which illustrate and summarize the data. The chart, which is presented first in the description of each library, is a flow chart illustrating the movement of materials and the relationships of operations in the cataloging and processing functions. Each operation which was timed has a number on the flow chart, and these numbers correspond to the descriptions of the operations or "steps" given in the text. The investigators time record for each observation is given in Appendices C through G.

The first table for each library summarizes the total mean times for each activity as recorded by the library staff and gives the mean time obtained in each of the four separate weekly trials. It will be noted that some activities did not occur during certain weeks.

The second table for each library compares the mean times recorded by the library staff with the mean times recorded by the investigator for each operation. Columns 1, 2, and 3 of this table present the data as kept by the staff, while columns 4 and 5 are the data obtained by the investigator. This table indicates how many times the various activities occurred during the four-week observation period, and how many individual items the staff handled during those periods. For example, at Library One (Table 7), within the four-week period the staff recorded the cataloging of books on 32 separate occasions and completed 340 items during those occurrences. This is not to say that they may not have cataloged more books during those weeks, but these were the numbers for which a time record was kept. In addition, the table displays how many observations were kept by the investigator and the times for each activity obtained by him. This table also indicates the time differences in cataloging, classification, and typing of card sets when using commercial cards and doing original cataloging.

The third table indicates the labor cost assigned to each activity. Where the performance of an activity was optional, that is, it was sometimes performed by a clerk or sometimes by the cataloger, depending on time available or other assignments, the task was always computed at the lower rate of pay. There were few activities in which this option occurred and all of them were in the initial stages of the work flow, e.g., matching cards with books, pricing and sourcing books, etc. The rate of pay was computed in seconds by taking the hourly rate and dividing it by 3,600. The cost computations were based on the time records kept by the library staff as it was natural that theirs was the more complete. Although the investigator obtained times for almost all operations, his data were more in terms of a validating sample.

Figure Two is a summary of the activities used and defines the areas of work included in each. The figures for four of the twenty-one activities were not used in the data compilation as they were inconclusive or inappropriate. These were activities 11, 19, 20, and 21. Activity eleven, correcting cards, was recorded only once by a library and involved work with older books. The library staffs were able to fit all processing activities involving new books in the categories presented, so activity 19, "Other," was not used. Activity 20 was useful in an attempt to account for all of the time worked during the weeks of observation, but all of this time with the exception of that spent in public service was allocated to new book processing. The library staffs made similar use of activity 21, supervision, making no notation of the time spent in interruptions, but simply included the time in whatever they were doing, and it was averaged in the record; the investigator did the same for interruptions as they occurred during his observations. As there were no new staff nor any shifts in personnel assignments during the period, there was a minimum of consultation necessary.

The reader should be warned against attempting to compare times for activities between libraries without reference to the description of the processes. Each library operates as an entity, and few of their work processes are exactly alike. One library does original cataloging for all its books; another uses all LC cards, or as many as it can obtain, while the remaining three libraries use Wilson cards to varying degrees. The investigator has attempted to extract those procedures which are comparable, and a discussion of this aspect of the data is presented in the conclusion.

The descriptions of work procedures include some items that were not measured, although these are clearly indicated. It was assumed that these same processes would continue to take place, even if the main portion of processing was done by a center. Thus a library which accessions its volumes would presumably continue to accession after subscribing to a center's services. The description of the entire process begins, in each case, after the books have been taken from the boxes and checked with the invoices and order files, as this marks the beginning of those operations which would be carried out in the processing center.

Analysis of salaries paid in non-member libraries.--As one table in the group for each library graphically shows the cost for each operation, by giving the labor cost per second and the number of seconds taken to perform the given operation, it was thought advisable to explain how the labor costs were derived while discussing the salary differences in the non-member libraries.

There were six professional librarians and nine clerical employees whose salaries and wages figured in the computations of the study. In each of three libraries, one professional and two clerks cataloged and processed new books. In a fourth library, the processing staff was represented by two professionals and two clerks, while in the fifth library there was one professional and two clerks. Hourly clerical wages were distributed as follows: $1.50, $1.69, $1.75 (2), $1.91, $2.02, $2.08, $2.29, and $2.90. The highest hourly rate was paid to a non-professional who has been with the library for twelve years and who acts as the cataloger.

The professional salaries, when reduced to hourly rates, were as follows: $2.95, $3.11, $3.23, $3.35, $3.51, and $3.64. These rates included a head librarian who assists in cataloging, but is neither the highest nor lowest paid in this group.

For those not on an hourly employment basis, the hourly rate was computed by dividing the annual salary by hours actually worked. Vacation time, as well as a uniform period equivalent to two weeks' working time was subtracted from each person's schedule to allow for holidays and sick leaves.

By placing the untrained person in the ranks of the professionals on the basis of job done, there is a range of $.79 in clerical rates, from $1.50 to $2.29 per hour. On the professional level there is a range of $.74 as hourly rates vary from $2.90 to $3.64. On the same basis, the range between the highest paid clerical worker and the lower paid professional worker is $.61 per hour. Within the groups these ranges do not seem overly disparate, considering the longevity factor and the various types of work that these people are held responsible for.

The rather low level of professional salaries may be remarked upon. The highest annual salary of a professional librarian in the study was $6,200. When compared with the beginning salaries offered library school graduates as reported in the literature and in advertisements, these salaries seem quite low, especially as the area which served as a base for the study is conceded to be one in which living costs are high. Each professional is an experienced, able person; each, however, is married or has strong family ties in the community in which he has chosen to make his home and this may account for the low rate of pay for their services.

Vacation length varied for both professional and clerical, but the usual pattern was four weeks for a professional and two weeks for a clerical employee.

It was rather interesting that, of those persons who work full-time, only one was scheduled for a fourty-hour week; for the others the work week varied from 36 to 38 hours. This includes time for coffee breaks. It can also be noted that no one worked his fully scheduled hours solely on processing new books. For professionals, the time varied from 20 to 34 hours per week, and for clerical employees it varied from 16 to 30 hours per week. Most people were scheduled for some duty at a public service desk, and this time ranged as high as two nights a week plus alternate Saturdays, a factor which figures in the shortening of the work week for public library employees. Even those part-time employees who worked solely "behind the scenes" did not devote their entire time to new books, but also did mending, binding preparations, magazine repair and typing of letters.

There was no pattern of high or low pay among the libraries; the lowest paid and highest paid clerks were employed by the same library. The greatest factor in the range of wages was the length of service. The type of work done by clerical employees in the cataloging room was no indication of salary rates. It would seem that card typists could be expected to earn more than book processors. This was the case in three of the five libraries; however, in two of these three the person designated as cataloger typed the card sets. The processor earned more than the typists in two libraries due to greater length of service and other duties, such as those performed in the circulation function.

Note on the flow charts.--In order to achieve consistency in the symbols used on the flow charts, a template (no. X20-8020) from IBM was used in the drawings and the pattern followed in a recent book on data processing was adapted for use here.[2] As Schultheiss points out:

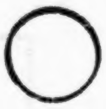
> The flow chart itself can be as elementary or as detailed as desired, as long as it is consistent in showing the whole system. Each form or shape on the chart should have a standard meaning so far as that particular set of charts is concerned, and the same parameters should apply each time a particular symbol is used. Such a situation is similar to that of

---

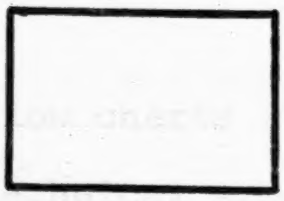
[2] Louis A. Schultheiss, Don S. Culbertson and Edward M. Heiliger, Advanced Data Processing in the University Library. (New York: The Scarecrow Press, 1962).

> standardized traffic signs, when an octagonal sign always means "stop" and a round sign always indicates a railway crossing. There is no universally standardized set of flow chart symbols, but a few conventional shapes have become established. . . . For library use, the IBM diagramming template seems to provide all of the shapes required.[3]

The symbols used are shown below, with an explanation of each one.

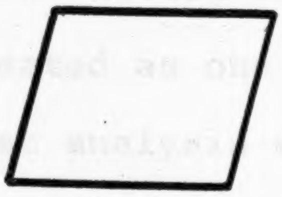


Start or End. The circle can have either meaning, depending on the notation written within it.

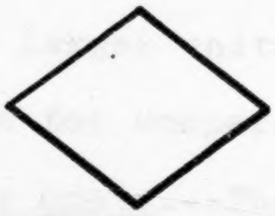


Action Box, Professional. Actions performed by professionals, whether professional or clerical in nature.

The size of a box is indicative neither of type nor of importance of the action. Its size is determined only by the length of the note required to explain the action.



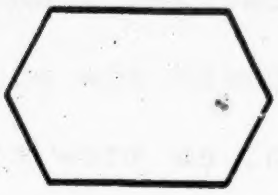
Action Box, Clerical. Actions performed by non-professionals, whether clerical or professional in nature.



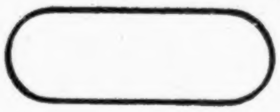
Explanation. Used to provide information and clarification upon certain points, and has no significance to the system itself.

---

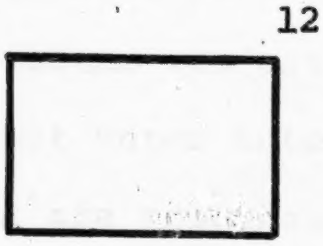
[3] *Ibid*., p. 81.



Non-measured Routines. Acts that are an integral part of the system but were not measured; these acts would still be performed if a library were to join a processing center.



Decision Box. Involves a question to be decided. A group of books to be sorted, etc. Not measured unless accompanied by a box number.



Box Number. This sample action box is marked "12." All boxes representing some measured action are numbered; the numbers correspond to the "Step" numbers given in the process description (Figure Two, p. 116).

The flow charts are not a complete break-down of each library's technical processing operation, but only diagram that part of the operation which might be removed from the library's routines if the library elected to join a processing center. Additional symbols could have been used to break down the action in the action boxes further; some activities treated as one operation on the flow chart and in the time-cost analysis were actually accumulated from measurement of parts of the function. The charts were restricted to larger units, however, as this seemed the best presentation for comparability of data.

Supply costs.--The cost of supplies used for book processing in the non-member libraries was estimated at 10¢ per volume. Derived from a standard library supply catalog, this figure was based on purchase of lots of 1,000 each. The costs were as follows:

Book pockets	$6.80 per 1,000	or	$.0068 each
Book cards	3.85 per 1,000	or	.0038 "
Date slips	2.60 per 1,000	or	.0026 "
Plastic jackets	7.50 per 100	or	.075 "
			$.0882

Rounding this to 9¢ and allowing an additional cent per volume for glue or paste, labels, ink, tape, etc., a total of 10¢ per volume was established. The cost of cataloging cards did not enter into the total figure as the majority of new books are processed with printed cards.

Explanation of Terms Used

Because of repeated references, some abbreviations have been used in the descriptions which follow, and they are explained here.

ABPR	American Book Publishing Record. Philadelphia, Pa., R. R. Bowker Co. A monthly cumulation of new book notices from the Weekly Record listing of Publishers' Weekly: includes suggested classification numbers and subject headings.
BRD	Book Review Digest, New York, H. W. Wilson Co.
CBI	Cumulative Book Index; a world list of books in the English language. New York, H. W. Wilson Co.
Dewey	Dewey, Melvil, Decimal Classification and Relative Index. Lake Placid Club, New York. Forest Press, Inc. of Lake Placid Club Education Foundation. The 17th edition has just appeared, but various editions are used in the libraries studied.

L.C. Cards	Catalog card services operated by the Library of Congress since 1901. A library may order cards by author and title, or by card number, which appears in various places, including ABPR, CBI, BRD, above.
Mean	The means obtained for the observations taken by the investigator were derived by summing the times for all random observations, which were of individual items, in each activity, and dividing by the number of observations made. The means obtained for the observations taken by the staff were derived by noting the total time taken to perform an activity on a given number of units, and dividing the time by the number of units.
PW	Publishers' Weekly, New York, R. R. Bowker Co. "Weekly Record" section aims to list every book published in the U. S., with full bibliographical detail. Cataloging data come from the Library of Congress, and give suggested classification numbers and subject headings.
Sears	Frick, Bertha M., ed. Sears List of Subject Headings. New York, H. W. Wilson Co. First edition, prepared by Minnie E. Sears, appeared in 1923. The 8th edition, published in 1959, is in common use at this time, although the 9th edition has just appeared.
Wilson Cards	A catalog card service operated by the H. W. Wilson Company of New York. Libraries may either subscribe to the total service at a cost of $225 per year, or send for card sets on an individual basis by coupons. About 3,000 titles are cataloged currently by this service each year.

Library One

The staff in the processing department of Library One consists of three people, viz., a professionally trained cataloger and two clerical employees. The cataloger works 34 hours each week in cataloging duties and is assigned to assist at the public reference desk for the remaining six hours. The clerical employees, designated as a typist and processor, work twenty-four and twenty hours per week, respectively. All of their time is spent in activities identifiable as processing tasks; those hours not directly related to new book processing are easily separated, since they involve filing of catalog cards by the typist and mending or bindery preparations by the processor.

The work room is separate and reserved for processing purposes. Well lighted, with a large window, the room measures 22 x 25 feet and is removed from the traffic pattern of public and staff due to its remote, upstairs location. Other staff members do have access to the staff lounge via the processing room, but it was observed that the habit of the staff is to use an alternate route. The recording of observations was relatively easy in this case, due to the freedom from interruptions.

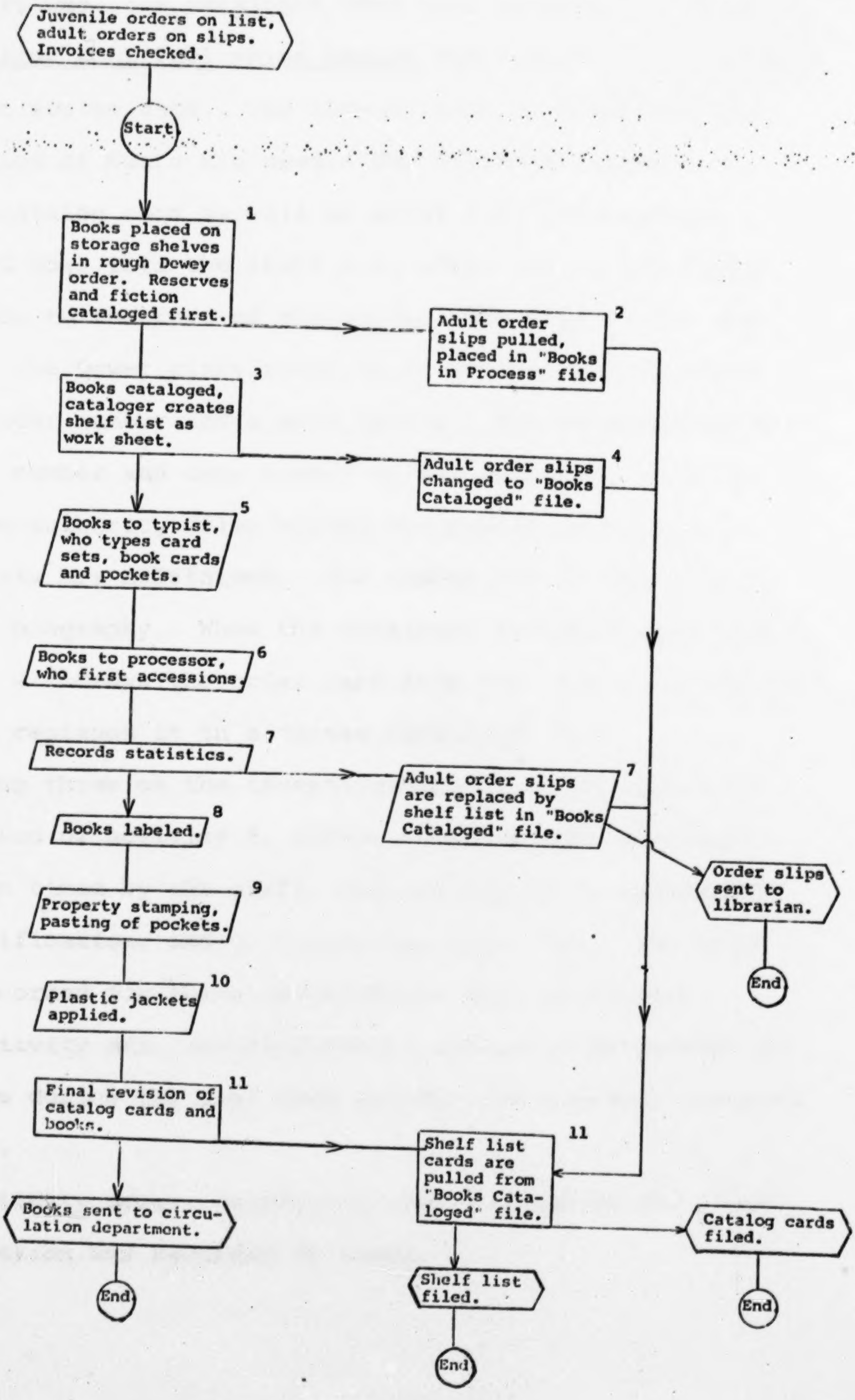
The cataloger must go down to the ground floor to consult the official (public) catalog, which does take some extra time. She accumulates necessary research until she has several matters upon which she must consult the catalog. Since the shelf list is near her desk, those cards may often serve as a classification and subject heading authority file, inasmuch as the shelf list cards have added entry tracings noted on them, having served as the work card for the typist.

Manual typewriters are used; one electric eraser is available at a central point, although each of the staff must rise to use it; and the room is equipped with a telephone, a dumb-waiter and a large supply closet. A washroom and clothes closet are adjacent to the workroom.

Specific procedures.--In this library, juvenile books are ordered from a list and simply checked off the duplicate invoice as received; no card order file is maintained. Adult orders are placed on order slips and kept in an outstanding order file. As the books are received and checked, the order slips are pulled from the outstanding order file and refiled in a "Books in Process" file, while the books are placed on a storage shelf in rough Dewey order--all reserves and fiction are cataloged first. The "steps" referred to correspond to the numbered boxes in Chart Two.

Steps one and two.--The staff recorded no times for any operation before actual cataloging. The investigator felt that the sorting and filing involved should be measured, as these operations could be eliminated if the library were to join a processing center, and they concerned several subsequent operations. Step one, the sorting of books by type and the movement to storage shelves, with subsequent filing, was observed 20 times, and a mean of 29 seconds was noted. Step two was noted 20 times with a mean of 25 seconds.

Chart 2 Library One, Flow Chart


Juvenile orders on list, adult orders on slips. Invoices checked.
Start
1
Books placed on storage shelves in rough Dewey order. Reserves and fiction cataloged first.
2
Adult order slips pulled, placed in "Books in Process" file.
3
Books cataloged, cataloger creates shelf list as work sheet.
4
Adult order slips changed to "Books Cataloged" file.
5
Books to typist, who types card sets, book cards and pockets.
6
Books to processor, who first accessions.
7
Records statistics.
7
Adult order slips are replaced by shelf list in "Books Cataloged" file.
8
Books labeled.
Order slips sent to librarian.
End
9
Property stamping, pasting of pockets.
10
Plastic jackets applied.
11
Final revision of catalog cards and books.
11
Shelf list cards are pulled from "Books Cataloged" file.
Books sent to circulation department.
Catalog cards filed.
End
Shelf list filed.
End
End

Steps three and four.--No commercial cards are used in Library One; the cataloger does full cataloging, using the American Book Publishing Record and similar bibliographic tools for source data. The 15th edition of Dewey and the 8th edition of Sears are used. The cataloger types a regular catalog card as well as shelf list information. This card goes into the shelf list after use by the typist as a guide to the rest of the cards. The call number consists of the Dewey classification as well as a full three place Cutter number and a work letter. The cataloger pencils the call number and copy number on the front of the title page. No authority files beyond the public catalog and shelf lists are maintained. The number 921 is used for individual biography. When the cataloger finishes with each book she withdraws the order card from the "Books in Process" file and replaces it in a "Books Cataloged" file.

Step three on the investigator's chart of work flow is composed of activity 6, author verification, the first operation timed by the staff, and activities 7, cataloging, 8, classification, and 9, typing the main card. The mean times recorded for these observations were as follows:

Activity six, verification of authors--131 seconds on 324 items during the four week period; the activity occurred 27 times.

Activity seven, cataloging--328 seconds on 340 items; the operation was recorded 32 times.

Activity eight, classification--148 seconds on 326 items; the operation occurred 28 times.

Activity nine, main card typing, involved 348 items in 31 separate occurrences, and a mean of 120 seconds was derived. All of these items combine to make step three on the flow chart--their combined mean is 727 seconds. The investigator made 17 random observations of this entire process and derived a mean of 673 seconds. To this must be added the observations of step four, changing the adult order slips from the "Books in Process" file to the "Books Cataloged" file, which was part of the cataloging activity when recorded by the staff. As measured during 17 random observations by the investigator, this resulted in a mean of 20 seconds. Thus a total of 693 seconds was obtained by the investigator to compare with 727 obtained by the staff record.

Step five.--After being cataloged the books go to the typist, who types card sets, the book card and pocket. This operation is composed of activity thirteen--reproduction of card sets, and activity fourteen, typing of book card and pocket. Based on 51 counts involving 472 items, the mean time taken to type a set of cards was 310 seconds. Based on 49 observations and 680 items, the mean time taken to type a book card and book pocket was 52 seconds. The operation was not divided for measurement by the investigator; a mean of 370 seconds based on 45 random observations was obtained to compare with the mean of 362 seconds derived by combining the records kept by the staff for this operation.

Steps six and seven.--These steps were not separated in the staff records, while the investigator divided the operation for measurement. In the staff record the activity numbered twelve was counted four times, involved 131 items and the mean was 82 seconds. This step follows the typing of card sets--the books go to the processing clerk who first accessions the books. It must be noted that this is in addition to the assignment of copy numbers by the cataloger. Accessioning involves removing the shelf list card from the pack placed in the book pocket by the typist. A Bates numbering machine is then used to stamp the accession number on the shelf list, the book card and pocket, and the book itself, on the page following the title page. No accession record is kept. This describes step six; a mean time of 40 seconds was obtained from 65 continuous observations.

The shelf list cards are kept separate and are used to record the number and types of books cataloged in a statistical ledger. The shelf list cards are then filed as replacements for the order cards in the "Books Cataloged" file; the order cards are given to the librarian who uses them as a guide in compiling new book lists--the shelf list cards remain in the "Books Cataloged" file until they are withdrawn by the cataloger after final revision. These operations appear as step seven and take a mean time of

33 seconds, based on 38 random observations. Thus a mean of 82 seconds for the staff record (activity 12) can be compared with the total mean of 73 seconds obtained by the investigator.

Step eight.--After a group of books have been accessioned and recorded, a series of call numbers are prepared on spine labels. A sheet of 25 pressure sensitive labels is filled, then one label is applied on each dust wrapper just above the bottom of the book. Books without dust wrappers are labeled with an electric stylus and transfer paper. This operation was recorded 22 times, involving 482 items, and the mean averaged 56 seconds for activity fifteen. The investigator randomly observed step eight 38 times and obtained a mean of 46 seconds.

Step nine.--This step includes the pasting of the pocket, and property stamping in four places--top, bottom, title page and "secret" page. The staff record was kept separately as activity sixteen, pasting of pockets, 24 counts, 598 items, mean of 42 seconds, and activity seventeen, property stamping, 22 counts, 542 items, mean of 25 seconds, or a combined mean of 67 seconds. The investigator obtained a mean of 63 seconds over 27 random observations.

Step ten.--The final processing step is the application of plastic jackets. The dust wrapper is removed, inserted in a sleeve composed of a plastic front and a manila paper back, and is glued on both edges, with the ends open. After insertion of the dust wrapper, the extra portion of the sleeve, should any remain, is folded behind the jacket and creased by pinching with the finger. Creasing is also done at the spine folds and end flaps. The encased dust wrapper is replaced on the book and affixed in four places with a special tape. The books are then moved to a shelf for a final revision.

The staff recorded this activity as number eighteen; it occurred 13 times on 238 items, and a mean of 106 seconds was derived. The investigator made 48 random observations of this operation and got a mean of 65 seconds.

Step eleven.--The catalog cards have accompanied the books throughout the processing steps, and are now removed for final revision by the cataloger. Based on 19 occurrences and 558 items, the staff recorded a mean of 24 seconds for this operation. The investigator made 47 random observations of this step and derived a mean of 18 seconds. Added to this should be the second part of step eleven, withdrawing shelf list cards from the "Books in Process" file, which was measured separately by the investigator--on 47 random observations a mean of eleven seconds was computed. Combined, these operations averaged 29 seconds, compared with the staff mean of 24 seconds.

Commentary.--From the cost summary in Table 8 it can be seen that the labor cost assigned to new book cataloging and processing is $1.05 per title. Added to this figure

TABLE 6

LIBRARY ONE--SUMMARY OF TIMES USED TO PERFORM ACTIVITIES

Activity	4-Week Mean	Mean Times Per Week Week One	Week Two	Week Three	Week Four
Activities one through five not used					
6	131	141	148	97	-0-
7	328	376	325	279	-0-
8	148	146	168	120	-0-
9	120	127	139	78	-0-
10	24	26	19	50	-0-
12	82	76	87	-0-	-0-
13	310	346	292	363	292
14	52	89	29	38	61
15	56	74	46	64	43
16	42	58	69	33	28
17	25	21	26	23	27
18	106	109	135	94	96

TABLE 7

LIBRARY ONE--COMPARISON OF TIMES RECORDED BY LIBRARY STAFF AND BY THE INVESTIGATOR

	1	2	3	4	5
	Library Staff			Investigator	
Activity	No. of Observation Periods	Total Items Handled in Observation Period	Mean Time Per Item (in secs.)	Mean Time Per Item (in secs.)	No. of Random Observations
Activities one through five not used.					
6. Verify authors	27	324	131	*	
7. Catalog, original	32	340	328	*	
8. Classify, original	28	326	148	*	
9. Type master card	31	348	120	*	
Subtotal for 6-9			(727)	693	17
10. Revise cards	19	558	24	29	47
12. Shelf listing	4	131	82	73	38
13. Reproduce card sets	51	472	310*		
14. Type book cards, pockets	49	680	52*		
Subtotal for 13-14			(362)	370	45
15. Mark call numbers	22	482	56	46	38
16. Paste pockets	24	598	52*		
17. Property stamping	22	542	25*		
Subtotal for 16-17			(77)	63	27
18. Plastic jackets	13	238	106	65	48
Totals			1,424	1,339	

*These activities were not separated by the investigator in making his observations.

TABLE 8

LIBRARY ONE--SUMMARY OF COSTS PER ACTIVITY

Activity	Mean Time Per Item (in secs.)	Labor Cost Per Second	Labor Cost Per Item
Activities one through five not used			
6	131	$.00863	$.1131
7	328	.00863	.2831
8	148	.00863	.1277
9	120	.00863	.1036
10	24	.00863	.0207
12	82	.00562	.0461
13	310	.00487	.1510
14	52	.00487	.0253
15	56	.00562	.0315
16	42	.00562	.0236
17	25	.00562	.0140
18	106	.00562	.0596
	1,424		$.9993
If the steps not recorded by the staff are added--			
Step 1	29	.00863	.0250
Step 2	25	.00863	.0216
Total Time (in secs.)	1,478	Total Cost	$1.0459

must be the cost of supplies used, which were computed at $.10 per book. Thus a cost of $1.15 per title has been established at Library One. These figures are comparable to the analysis of costs made by the head librarian at Library One, who recorded the actual number of hours spent by the staff in processing new books over a year's period. His report to the investigator is reproduced here.

May 13, 1965

Dear Mr. Hendricks:

The following is a rough estimate of the time and cost in salaries and materials for the processing of 6,344 books during our fiscal year May 1, 1964 to April 30, 1965.

Mrs. A, Technical Processes Librarian
    Worked a total of 1,545 hours
    Spent 200 hours on desk duty
        50 hours on bills and orders
        50 hours on revisions
        12 hours on statistics
        50 hours on shelf-listing
        72 hours on filing
        108 hours on accessioning
        20 hours on recordings
    Leaving a total of 393 hours spent on those activities which presumably would be handled by a processing center.

Mrs. B, Library Clerk
    Worked a total of 1,375 hours
    Spent 144 hours on order work
        24 hours on filing
        24 hours on revisions
    Leaving a total of 1,183 hours spent on the activities under consideration.

Mrs. C, Library Clerk
Worked a total of 1,024 hours
Spent 150 hours on bindery preparation
275 hours on mending
37 hours on accessioning
8 hours on recordings
Leaving a total of 555 hours spent on the activities under consideration.

Mrs. A spent 983 hours	@ 3.11 per hour or	$3,057.13
Mrs. B spent 1,183 hours	@ 1.75 per hour or	$2,070.25
Mrs. C spent 555 hours	@ 2.02 per hour or	$1,121.10

Total salary costs for processing were about $6,248.48

Salary costs per book were about $.985

Material costs per book were about $.105

We therefore arrive at an estimated cost of $1.09 per volume. This does not of course include the cost of space, utilities, machinery, insurance or fringe benefits.

We believe that this $1.09 figure is fairly correct. It results from actual production over a whole year, thereby averaging out the peaks and valleys of any such operation. The percentage of time spent by each employee on the processes involved jibes quite closely with percentage estimates we made on a more subjective basis. The end result also jibes closely with the result of a less detailed study made last year.

It can be surmised that Library One could cut its costs by subscribing to the Wilson card service. Such a subscription could be expected to reduce the time spent in activities six through nine and thirteen. If the library used even 1,800 of these sets, the minimum number suggested by the Wilson Company, it could greatly reduce its labor charges, in view of the experience of other libraries in the study. The critical matter then becomes the number of card sets that would be used and how much time would be spent in approving or changing the Wilson cards. Three libraries in the study which use these card sets spend a mean time of 139, 197, and 198 seconds, respectively, on cataloging and classification. With these cards the typing of card sets is substantially reduced, as can be seen in Table 21.

The processing procedure at Library One appears to be very efficient and satisfactory. The balance of work between professional and non-professional is well-defined, and the non-professional work is almost evenly divided. By reference to Table 6 it can be seen that the total time of 1,748 seconds for cataloging and processing can be divided into professional time, 805 seconds, and clerical time, 673 seconds. The latter time can be divided again into the time for typing, 362 seconds, and for processing, 311. This seems to correspond with the work schedule of the personnel, as the cataloger works almost twice as many hours (34 per week) in new book cataloging as does the typist (24 hours per week) and the processor (20 hours per week).

The only questionable activity might be the maintenance of the "Books in Process" card file. As can be seen from Chart Two this is an auxiliary operation that might be questioned as to its usefulness. The purpose of this file, and the shuffling of cards within it at certain points, is to provide a guide to the location of books within the processing flow. Fiction and reserve books are presumably those which the staff might have most need to locate, and these are cataloged and processed immediately; as a result, the library staff might want to record how often and why the card file for "Books in Process" is actually used. As there are adequate shelves for books waiting to be cataloged, and books in the subsequent process are openly placed on trucks, it does not seem as if it would be too difficult to locate the book itself.

From Table 7 it will be noted that the investigator varied from the time recorded by the staff a total of 85 seconds, or one minute and 25 seconds. Most of this variance occurred in cataloging, 34 seconds, and in the application of plastic covers, 41 seconds, which account for 75 of the 85 seconds. These differences, as well as the total time spent on cataloging, will be discussed in the conclusions.

Library Two

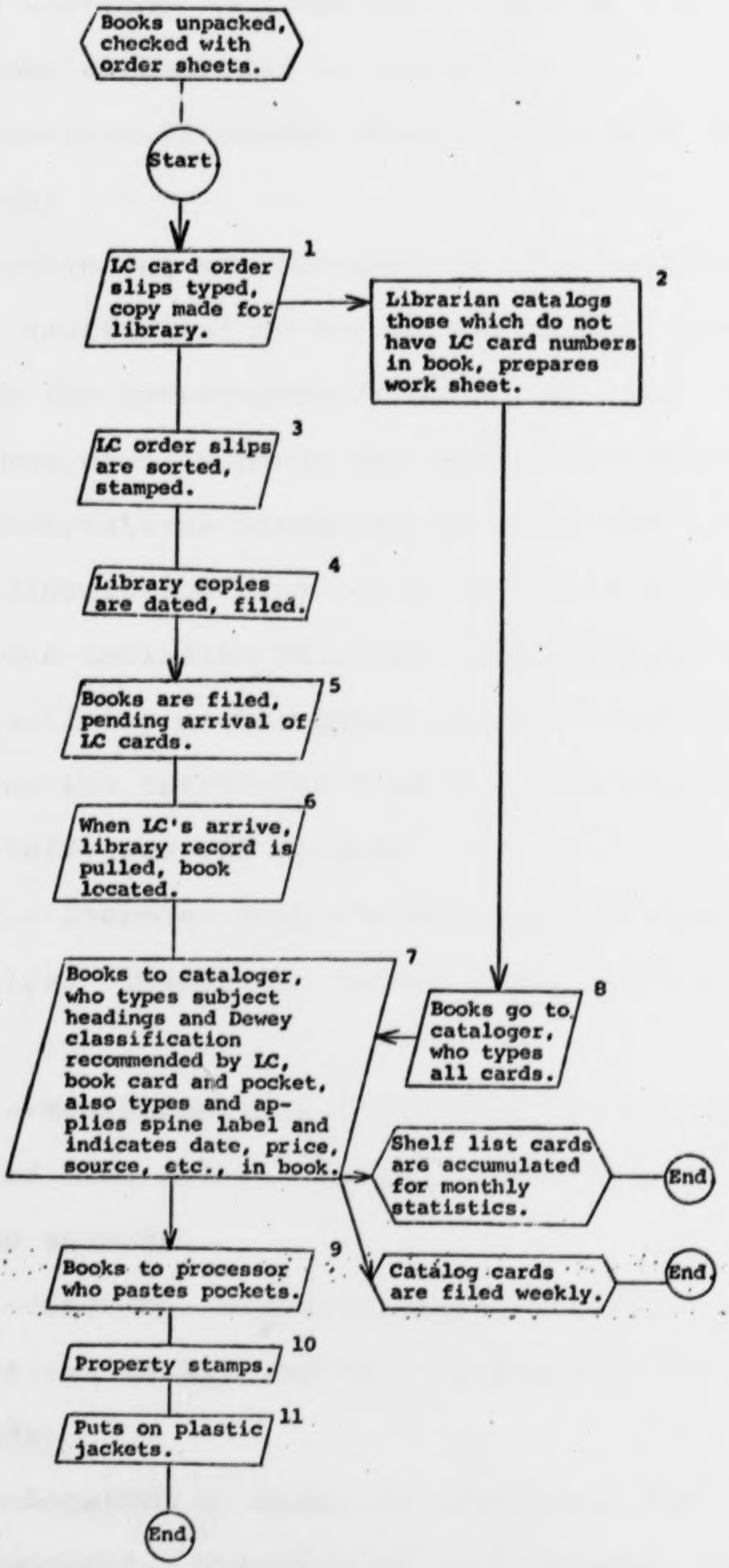
Housed in a building constructed in 1958, Library Two is already experiencing overcrowding and there are plans to expand the present facilities. Provision was made for this contingency in the construction of the present building. The effect of these rather crowded conditions are beginning to be felt in the work room area which is now 18'6" by 13'. All of the typing is done on manual typewriters in the librarian's office, which is adjacent to the work-room. Well-lighted and equipped, the room is used to unpack and store books, to process new books and to mend old ones. It also serves as a staff lounge and has a kitchen unit, storage cabinets and a washroom. A large table is located in the center of the room and serves a variety of purposes. Books awaiting L.C. cards, bills, or cataloging are stored on trucks.

The personnel concerned with processing in Library Two is comprised of the professionally trained head librarian, a clerical worker designated as cataloger, and a clerk who does the processing. The cataloging clerk has been with the library for a number of years; she is regarded as a professional in terms of benefits and salary.

Specific procedures.--After new books are unpacked and checked against the invoices and order sheets, an order is placed for a set of Library of Congress catalog cards. No L.C. cards are ordered in advance. The L.C. card number is obtained from the verso of the title page. Those books which do not have the number printed therein are cataloged by the librarian. This did not occur often enough to measure. The "steps" refer to the numbered boxes on the flow chart, Chart Three.

Step one.--The usual yellow order sheet is prepared for L.C. cards; in addition, a blue file slip is prepared for internal use. The cataloger assembles the two slips, inserting a carbon, and types the L.C. card order number, the full name of the author, full title, place, publisher and date. This and subsequents steps three through six were not

Chart 3 Library Two, Flow Chart


Books unpacked, checked with order sheets.
Start
1
LC card order slips typed, copy made for library.
2
Librarian catalogs those which do not have LC card numbers in book, prepares work sheet.
3
LC order slips are sorted, stamped.
4
Library copies are dated, filed.
5
Books are filed, pending arrival of LC cards.
6
When LC's arrive, library record is pulled, book located.
7
Books to cataloger, who types subject headings and Dewey classification recommended by LC, book card and pocket, also types and applies spine label and indicates date, price, source, etc., in book.
8
Books go to cataloger, who types all cards.
Shelf list cards are accumulated for monthly statistics.
End
Catalog cards are filed weekly.
End
9
Books to processor who pastes pockets.
10
Property stamps.
11
Puts on plastic jackets.
End

measured separately by the staff--their combined mean times must be compared with the combined mean times for activities one, two, and three as recorded by the staff.

Step one involved 21 random observations with the mean time of 84 seconds.

Step two.--This was not recorded by the investigator as there was an insufficient number of new books without L.C. cards during the investigator's presence. The staff recorded mean times of 53 seconds for author verification, based on three observations including 54 items (activity six); 171 seconds for descriptive cataloging (activity seven) based on six observations including 94 items, and 74 seconds for classification (activity eight) based on five observations of 94 items. Thus the total mean time for step two, as counted by the staff, was 298 seconds.

Step three.--Includes only the sorting and stamping of L.C. order slips. Twenty-one random observations, mean of 19 seconds.

Step four.--Measurement of the dating and filing of the internal record of L.C. orders placed. Ninety-one observations, mean of 20 seconds.

Step five.--Storing, alphabetically by author, of new books pending arrival of L.C. cards. Twenty-two observations, mean of 29 seconds.

Step six.--Location of books to match with L.C. cards when cards are received. Twenty-four observations, mean of 76 seconds. This and the previous five steps were not measured in similar segments by the library staff. Their data concerning the requesting and receipt of L.C. cards were recorded under activities one, two, and three. The mean times recorded were for activity one, 48 seconds based on four observations and 138 items; for activity two, 113 seconds, based on nine observations and 179 items, and for activity three, 69 seconds, based on seven observations and 126 items. This total of 230 seconds can be compared with a total of 228 seconds derived by the investigator for steps one, three, four, five, and six. It can be noted that the times for activity three, 69 seconds, and step six, 76 seconds, are comparable.

Step seven.--This operation includes the preparation of card sets, using the Dewey number suggested by L.C. This alone makes up the classification. Subject headings are also adopted directly from the L.C. cards. The typist also types the book card and pocket, types and applies the spine label, and indicates date, price, and source in the book. Based on 19 observations, a mean of 222 seconds was recorded. It should be noted here that the staff recorded mean times of 205 seconds for activity four, cataloging with commercial cards (based on 29 observations and 480 items), and 56 seconds for activity five, classification with commercial cards (based on seven observations and 124 items). During the period of observation by the investigator, however, the cards were given directly to the clerk for processing.

Step eight.--Not recorded, as there was an insufficient number of new books which did not have L.C. cards, thus the investigator could not confirm the length of time taken for the typist to type a unit card and the subsequent step. For this activity, 13, the staff recorded a mean time of 257 seconds, based on one observation and 14 items.

Step nine.--Pasting of pockets, for which there were 21 random observations, and a mean of 50 seconds. Staff recorded a mean of 57 seconds based on 18 occurrences and 314 items.

Step ten.--Property stamping is done six times, including a "secret" page. On 25 random observations the investigator derived a mean of 39 seconds. The staff recorded a mean of 52 seconds, based on 15 observations and 281 items.

Step eleven.--Plastic covers are applied by removing the dust wrapper and inserting it into the plastic cover. The bottom fold is formed by creasing with a bone folder. The cover is replaced on the book and taped in four places. On 14 observations, including 279 items, the staff recorded a mean time of 110 seconds. On 22 random observations, the investigator derived a mean time of 59 seconds.

Commentary.--As can be seen in Table 10, the time for cataloging with Library of Congress cards and for doing original cataloging are imbalanced, using the record kept

TABLE 9

LIBRARY TWO--SUMMARY OF TIMES USED TO PERFORM ACTIVITIES

		Mean Times Per Week			
Activity	4-Week Mean	Week One	Week Two	Week Three	Week Four
1	48	41	50	55	51
2	113	-0-	142	110	117
3	69	55	96	60	62
4	205	113	186	237	205
5	56	40	62	75	71
6	53	-0-	51	54	51
7	171	112	154	190	179
8	74	-0-	51	80	76
9	44	44	-0-	-0-	-0-
10	-0-	-0-	-0-	-0-	-0-
12	-0-	-0-	-0-	-0-	-0-
13	257	257	-0-	-0-	-0-
14	34	21	38	34	29
15	32	73	43	25	26
16	57	35	56	62	59
17	52	63	22	25	64
18	110	100	121	111	109

TABLE 10

LIBRARY TWO--COMPARISON OF TIMES RECORDED BY LIBRARY STAFF AND BY THE INVESTIGATOR

	1	2	3	4	5
	Library Staff			Investigator	
Activity	No. of Observation Periods	Total Items Handled in Observation Period	Mean Time Per Item (in secs.)	Mean Time Per Item (in secs.)	No. of Random Observations
1. Search card data	4	138	48	*	
2. Request cards	9	179	113	*	
Subtotal for 1-2			(161)	152	21
3. Match cards, books	7	126	69	76	24
4. Catalog, with cards	29	480	205	not observed	
5. Classify, with cards	7	124	56	"	"
6. Verify authors	3	54	53	"	"
7. Catalog, original	6	94	171	"	"
8. Classify, original	5	94	74	"	"
9. Type master card	2		44	"	"
10. Revise cards	0		0	0	
12. Shelf listing	0		0	0	
13. Reproduce card sets	1	14	257	222	19
14. Type book card, pocket	20	324	34	not separated	
15. Mark call numbers	17	314	32	"	"
16. Paste pockets	14	314	57	50	21
17. Property stamping	15	281	52	39	25
18. Plastic jackets	14	279	110	59	22

Total time per book, L.C. cards--998 seconds

Total time per book, original cataloging--932 seconds.

---

*These activities were not separated by the investigator in making his observations.

TABLE 11

LIBRARY TWO--SUMMARY OF COSTS PER ACTIVITY

Activity	Time Per Item in Seconds	Labor Cost Per Second	Labor Cost Per Item, L. C. Cards	Labor Cost Per Item, Original Cataloging
1	48	$.00805	$.0386	$.0386
2	113	.00805	.0910	
3	69	.00805	.0555	
4	205	.00805	.1650	
5	56	.00805	.0451	
6	53	.00975		.0517
7	171	.00975		.1667
8	74	.00975		.0721
9	44	.00805		.0354
10	-0-	-0-	-0-	-0-
12	-0-	-0-	-0-	-0-
13	257	.00805		.2069
*	222	.00805	.1787	
14	34	.00805	.0274	.0274
15	32	.00805	.0250	.0250
16	57	.00470	.0268	.0268
17	52	.00470	.0244	.0244
18	110	.00470	.0517	.0517
			.7292	.7249

Time per book, L.C. cards, 998 seconds.

Time per book, original cataloging, 932 seconds.

*Activity 13--The staff was not asked to measure typing of L.C. card sets separately from those originally cataloged--222 seconds is the observer's average; it includes book card and pocket.

by the staff as a basis for computation. The time taken to send for L.C. cards with the subsequent sorting of books and filing of records seems to balance some of their advantages in use. It can also be noted, again according to the records kept by the staff, that a longer length of time is spent on descriptive cataloging with L.C. cards (205 seconds) than is spent on original cataloging (171 seconds). If author verification (53 seconds) is added to this--presumably an item that is accepted by the staff as given by the Library of Congress--Library Two spends 224 seconds on original cataloging. The cost differences are due to the differences in salary.

Inasmuch as the acquisitions of Library Two are mostly standard trade editions of American publishers, the staff states that 95 percent of their new books have Library of Congress cards available for them. Barring the occasional order that L.C. is unable to fill, all but a small fraction of books acquired by Library Two are processed with L.C. cards.

In the year ending April 30, 1965, Library Two added 1,933 adult books and 911 juvenile books for a total of 2,844 books. It was assumed that 95 percent of these, or 2,700 were processed using L.C. cards.

Little inconvenience is caused by the delay of receipt in L.C. cards. All fiction is placed on the shelves temporarily, and non-fiction is readied for the user on demand.

A check was made of 136 outstanding orders for L.C. cards. These were cards ordered prior to May 1, 1965.

78 were dated in April, 1965
30 were dated in March, 1965
2 were dated in February, 1965
3 were dated in December, 1964
2 were dated in October, 1964
7 were dated in July, 1964
9 were dated in June, 1964
1 was dated in April, 1964
3 were dated in March, 1964
1 was dated in February, 1964
136

Of the 26 titles dated in 1964, nine had been cataloged temporarily. Five of the 30 titles ordered in March, 1965, were issued on the basis of temporary cataloging. Library of Congress cards now cost $.07 for the first card and $.06 for each of the remaining cards, when ordered by number. As Library Two uses an average of four cards per title, this adds $.25 per title to the labor charge of $.73. This, plus the addition of $.10 for supplies used on the books, brings the cost of processing and cataloging a book with L.C. cards to $1.08. On this same basis it costs $.83 when the library staff catalogs the book.

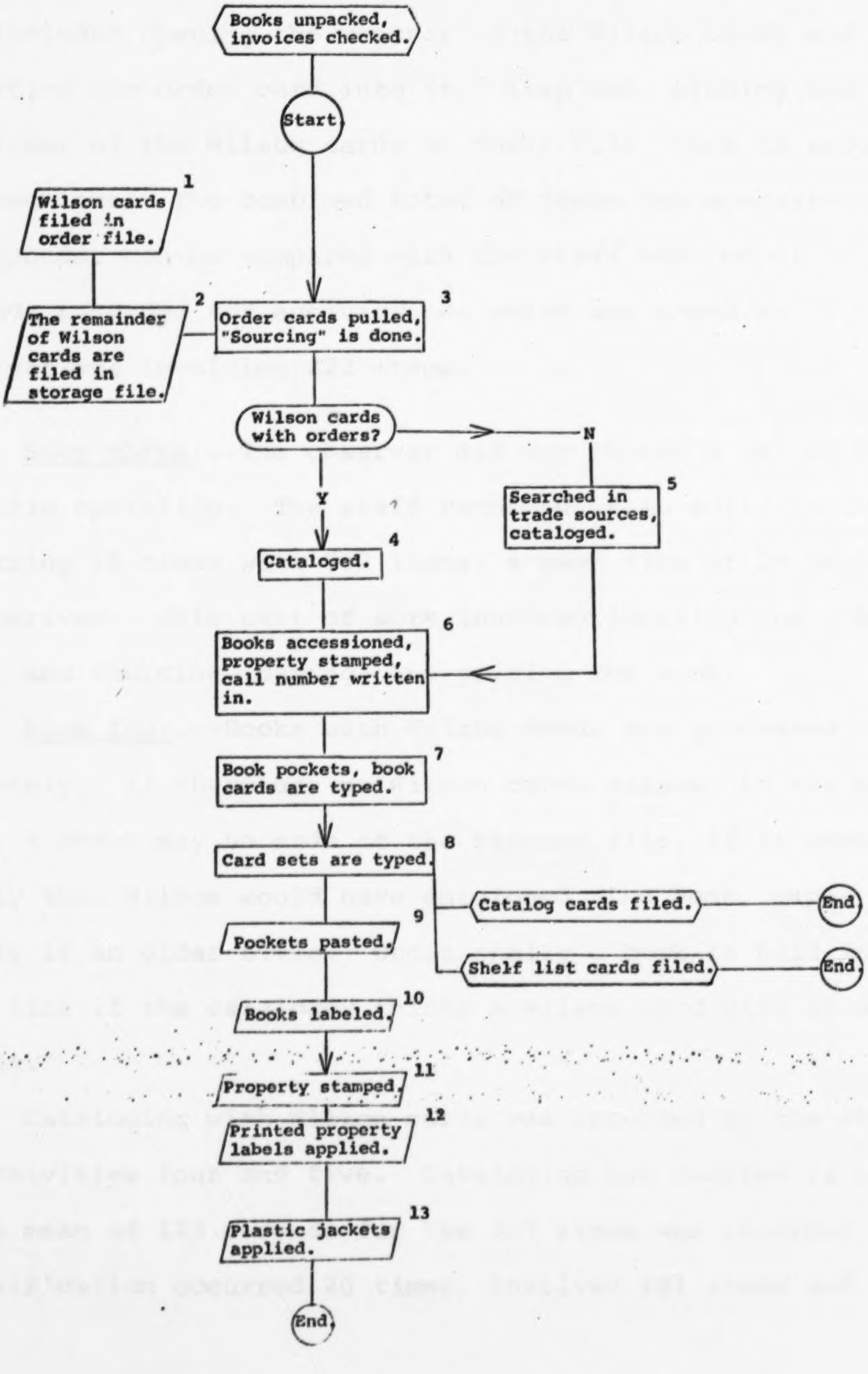
Library Three

Library Three is housed in a new, modern library building and the processing quarters are well-lighted, spacious and organized. There are commodious supply cabinets and other facilities so that work proceeds on a neat, well-ordered basis. The dimensions of the work room are 23' by

16'. Although all the behind-the-scenes activities are carried out in this area there is enough counter and table space available so that no one is crowded in making display materials, preparing material for binding, or processing books. Manual typewriters are used. Although the entry to the staff room is via this room, the door is near the circulation desk and there is little traffic in the rear of the room, that area set aside for cataloging. It was observed that the cataloger prefers to work in a quiet, uninterrupted fashion, and those hours which are assigned to cataloging are left relatively free from disturbance. There are two staff members assigned to the processing function, a professionally trained cataloger and a clerk who does the processing. The cataloger does the typing of the card sets, book card and book pocket--the clerk completes the physical preparation of the book. Wilson cards are used, and approximately 75 percent of those received are used in cataloging.

Specific procedures.--After the books have been unpacked and the invoices approved, they are immediately started through the processing routine.

Steps one and two.--These steps precede the receipt of the books, as Wilson cards must be placed in the outstanding order file or filed in a storage file. The investigator measured the placement of Wilson cards in the order file separately from placing them in the storage file. On the first operation, 21 random observations were recorded, Chart 4 Library Three, Flow Chart


Books unpacked, invoices checked.
Start
1
Wilson cards filed in order file.
2
The remainder of Wilson cards are filed in storage file.
3
Order cards pulled, "Sourcing" is done.
Wilson cards with orders?
N
Y
5
Searched in trade sources, cataloged.
4
Cataloged.
6
Books accessioned, property stamped, call number written in.
7
Book pockets, book cards are typed.
8
Card sets are typed.
Catalog cards filed.
End
9
Pockets pasted.
Shelf list cards filed.
End
10
Books labeled.
11
Property stamped.
12
Printed property labels applied.
13
Plastic jackets applied.
End

with a mean of 44 seconds. It must be noted that this time was not solely devoted to locating the proper order card, but included opening the wrapper of the Wilson cards and inserting the order card into it. Step two, placing the remainder of the Wilson cards in their file, took 13 seconds for each one. The combined total of these two operations, 57 seconds, can be compared with the staff mean of 62 seconds recorded for activity one which was based on 13 observations involving 222 items.

Step three.--The observer did not record a set of times for this operation. The staff recorded it as activity three, occurring 14 times with 752 items; a mean time of 28 seconds was derived. This unit of work involved locating the order card, and sourcing, dating, and pricing the book.

Step four.--Books with Wilson cards are processed immediately. If there are no Wilson cards already in the order file, a check may be made of the storage file, if it seems likely that Wilson would have cataloged the book, especially if an older title. Occasionally a book is held for some time if the cataloger thinks a Wilson card will be made for it.

Cataloging with Wilson cards was recorded by the staff as activities four and five. Cataloging was counted 22 times, and a mean of 123 seconds for the 307 items was recorded. Classification occurred 20 times, involved 281 items and took a mean of 74 seconds, or a combined total average of 197 seconds for this step. The investigator made 32 random observations of this activity and derived a mean of 198 seconds--cataloging and classification were not separated.

Steps five and six.--Once it is decided that there will be no commercial card sets available, the remaining titles are searched in the American Book Publishing Record, CBI, BRD, or other sources. The 16th edition of Dewey and the 8th edition of Sears are used as standards. The initial letter of the author's name is used in conjunction with the classification number. The author's full name, without dates, is given; the title, publisher and date of publication are given on the card, but no collation is recorded. The cataloger accessions the book with a special number devised to show the year as well as the accession number, e.g., 65-2479; no accession record is maintained. A property stamp is also used by the cataloger, in two places, and she pencils in the classification number.

Step five was randomly observed 25 times by the investigator and a mean of 288 seconds was recorded. This incorporated searching in the trade source and the actual cataloging. Step six was observed 24 times; the auxiliary items of accessioning, property stamping, etc., took a mean of 65 seconds. The staff measurement of these activities were noted as: 6- author verification, 25 occurrences, 393 items, 62 seconds, 7- cataloging, 14 occurrences, 175 items, 200 seconds, and 8- classification, 14 occurrences, 198 items, 86 seconds. These times, when combined, total 348 seconds and can be compared with the combined total average of 353 seconds obtained by the investigator for the same operations.

Step seven.--This operation includes the typing of the book card and book pocket. Based on activity 14, the staff recorded a mean time of 34 seconds during 28 occurrences involving 545 items. The investigator observed the operation 27 times and obtained a mean of 41 seconds.

Step eight.--As the typing of the card sets was done by the cataloger at her home, it was impossible for the investigator to confirm these figures. Since the cataloger was paid by the hour for this work she had kept a detailed record of her typing time; over the previous months she had also kept a record of the number of card sets typed each period. On 415 sets of Wilson cards a mean of 81 seconds was derived. On 438 sets for original cataloging, a mean of 248 seconds was obtained. It should be noted that the typing of the original sets included the main entry or master card. The mean time taken for this operation is thus 163 seconds. The staff also recorded this operation 15 times, during the four-week period, involving 343 units and obtained a mean time of 147 seconds.

Step nine.--Pasting of pockets was observed 18 times and took a mean time of 26 seconds. The staff recorded

34 occurrences, 754 items, with a mean of 33 seconds.

Step ten.--The staff recorded 32 occurrences of book labeling, involving 745 items, for a mean time of 43 seconds. The investigator broke the operation into three segments, but derived a total mean time of 45 seconds. The three segments consisted of writing the labels--14 observations, 18 seconds; measuring the book with a two-inch marker and marking it with a pencil, 22 observations, 5 seconds; and applying the label to the spine, 22 books, 22 seconds. On 13 observations made of the marking of books with a stylus and transfer paper, a mean of 41 seconds resulted.

Step eleven.--Three property stamps are placed on each book, in addition to the two made by the cataloger when she accessions. On 20 occurrences including 457 items, the staff recorded a mean of 19 seconds. On twelve random observations the investigator derived a mean of 16 seconds.

Step twelve.--The application of a gold-printed property label was not measured by the staff. This pressure-sensitive label is affixed on the front of each book before the plastic jackets are installed. On 22 random observations made by the investigator a mean of 16 seconds was obtained.

Step thirteen.--Plastic jackets are placed on all books with a dust wrapper. The wrapper is removed, and inserted into the plastic sleeve. The excess sleeve is folded over with a bone folder and the plastic cover is replaced on the book and taped in four places. On 26 occurrences noted by

TABLE 12

LIBRARY THREE--SUMMARY OF TIMES USED TO PERFORM ACTIVITIES

Activity	4-Week Mean	Mean Times Per Week Week One	 Week Two	 Week Three	 Week Four
1	62	-0-	65	75	33
2	-0-	-0-	-0-	-0-	-0-
3	28	-0-	32	26	27
4	123	125	109	106	155
5	74	65	79	65	83
6	62	99	60	49	47
7	200	293	128	154	109
8	86	106	73	85	63
9	-0-	-0-	-0-	-0-	-0-
10	-0-	-0-	-0-	-0-	-0-
12	30	-0-	30	-0-	-0-
13	147	39	217	137	148
14	34	24	29	27	53
15	43	42	46	35	55
16	33	27	32	30	44
17	19	21	20	20	14
18	77	68	70	74	86

TABLE 13

LIBRARY THREE--COMPARISON OF TIMES RECORDED BY LIBRARY STAFF AND BY THE INVESTIGATOR

	1	2	3	4	5
	Library Staff			Investigator	
Activity	No. of Observation Periods	Total Items Handled in Observation Period	Mean Time Per Item (in secs.)	Mean Time Per Item (in secs.)	No. of Random Observations
1. Search card data	13	222	62	57	21
2. Request cards	0	0	0	0	0
3. Match cards, books	14	752	28	not recorded	
4. Catalog, with cards	22	307	123	*	
5. Classify, with cards	20	281	74	*	
Subtotal for 4-5			(197)	198	32
6. Verify authors	25	393	62	*	
7. Catalog, original	14	175	200	*	
8. Classify, original	14	198	86	*	
Subtotal for 6-8			(348)	353	25
9. Type master card--included in 13					
10. Revise cards	0	0	0	0	0
12. Shelf listing	1	12	30	not recorded	
13. Reproduce card sets	15	343	147		
Wilson card sets				81	27
Original card sets				248	25
14. Type book card, pocket	28	545	34	41	27
15. Mark call numbers	32	745	43	45	22
16. Paste pockets	34	754	33	26	18
17. Property stamping	20	457	19	16	22
18. Plastic jackets	26	485	77	84	23
	Totals - Wilson		604	606	
		Original	860	841	

*These activities were not separated by the investigator in making his observations.

TABLE 14

LIBRARY THREE--SUMMARY OF COSTS PER ACTIVITY

Activity	Mean Time Per Item in Seconds	Labor Cost Per Second	Labor Cost Per Item, Wilson Cards	Labor Cost Per Item, Original Cataloging
1	62	$.00930	$.0577	$
2	-0-	-0-	-0-	-0-
3	28	.00930	.0260	.0260
4	123	.00930	.1144	
5	74	.00930	.0688	
6	62	.00930		.0577
7	200	.00930		.1860
8	86	.00930		.0800
9	-0-	-0-	-0-	-0-
10	-0-	-0-	-0-	-0-
12	30	.00930	.0279	.0279
13* Wilson	81	.00930	.0753	
Original	248	.00930		.2306
14	34	.00530	.0180	.0180
15	43	.00530	.0228	.0228
16	33	.00530	.0175	.0175
17	19	.00530	.0101	.0101
18	77	.00530	.0408	.0408
Wilson	604 seconds--		$.4793	
Original	860 seconds--			$.7174

*The investigator measured the typing of card sets for Wilson cards and original cataloging separately. The staff mean for both types of card sets was 147 seconds; the labor cost is thus $.1367.

the staff covering 485 items, a mean of 77 seconds was derived. On 23 observations taken randomly by the investigator, a mean of 84 seconds was achieved.

Commentary.--Notable in Library Three is the smooth flow of materials. There is no backlog of materials to be cataloged, and new books are processed and released with a minimum of delay. A number of worth-while gifts are received, as the suburb in which Library Three is located is noted for its educational level and the mobility of its residents. These boxes of gift books are promptly sorted; those to be added to the collection are processed immediately and the others are set aside for smaller libraries in the area.

During the year ended June 30, 1965, Library Three added 2,751 books to the adult collection, 529 books for the young adult collection, and 2,420 books in the juvenile collection, or a total of 5,700 volumes.

From Table 14 it can be noted that the labor cost per volume, using Wilson cards, has been computed at 48 cents. Added to this must be the cost of the card sets, 13 cents, and the supplies, 10 cents, for a total of 71 cents. As Library Three uses 75 percent of the cards furnished by the Wilson Company (3,000), in a given year, we can assume that for the 2,250 books processed with the use of Wilson cards, the cost is approximately 71 cents. For the remaining 3,450 volumes a cost of 82 cents has been computed, based on 72 cents for labor and 10 cents for supplies.

One factor which cannot be properly assessed in a study of this type is the performance of processing duties at a public desk which must be manned but which has "quiet" periods when other work, such as pasting of pockets and installation of book jackets, may be performed. The desk assignments are made to non-professionals who give directions, provide supervision and assist in locating materials but who do not give reference help or reader's service. But the desks must be manned. Is the full cost of work performed in these periods assignable to the processing function or should it be divided with the public service department? In Library Three, much of the processing work was performed by volunteers from several women's groups. This can provide a drastic reduction in processing costs that is difficult to assess. These factors were not considered in the investigation of Library Three--the costs are those that would prevail if the library had to pay for all the necessary labor. Of course, if the library were to join a processing center, other work could be undertaken at these times. Although not of a critical nature in the findings of this study, these factors represent important evaluative criteria for management decision on joining a center.

The only questionable factor of operation in Library Three might be the typing of catalog card sets, book cards and book pockets by the professional cataloger. The difference in the professional labor cost per second ($.0093) and that of clerical labor ($.0053) is substantial, and the possible savings on 5,700 volumes during an annual period would be considerable.

Of some interest is the distribution of professional and non-professional time per unit. Using Wilson cards, the 604 seconds consist of 398 seconds allocated to professional tasks and 206 to non-professional tasks. Of the 860 seconds consumed in cataloging and processing without cards, 654 seconds are used by the professional while processing time remains the same, 206 seconds.

It will be noted that the total mean times per unit achieved by the investigator varied 56 seconds in cataloging with card sets and 19 seconds in original cataloging.

The total of the investigator's actual mean measurements was 548 seconds. When the totals for the two activities not recorded by the investigator are supplied from the staff records, viz., 28 seconds for activity three and 30 seconds for activity twelve, the total is 606 seconds, only two seconds off the staff derived total of 604 seconds.

Library Four

The processing department in Library Four consists of four staff members of whom only three work hours approaching one-half time in the processing of new books. The positions are designated as two professional and two clerical. The professional positions involved are those of a reference librarian and cataloger. The reference librarian does the accessioning of the books in order to familiarize herself with the new incoming titles. In addition, she assigns the Dewey classification to those non-fiction books for which Wilson cards are not available or are not readily located in the American Book Publishing Record or other trade sources. Thus the reference librarian actually works very few hours that can be assigned to the processing of new books; accessioning, although time-consuming, was not measured inasmuch as it was assumed this process would continue were the library to join a processing center. The cataloger performs the other professional-level tasks in the processing of new titles, and devotes 22 hours per week to these duties.

The clerical staff positions can be described as typist and processor. The typist prepares the sets of catalog cards from the main card prepared by the cataloger, files and locates Wilson cards, does filing in the main catalog, makes card corrections and performs similar duties. Her work with new books accounts for twenty-two hours of her week. The processor prepares the new books for the shelf, and does mending and cleaning of books. She works sixteen hours per week in duties designated as work with new books.

The physical accomodations for cataloging and processing in Library Four are excellent. The room is well-lighted and spacious, consisting of an area 19'6" x 24'9". Other activities such as the processing of circulation records, checking in of serials, making of displays, etc., are also done in this room, but there is enough space and equipment available so that this does not interfere with book processing. Electric typewriters are used for card typing, and each desk is equipped with an electric eraser.

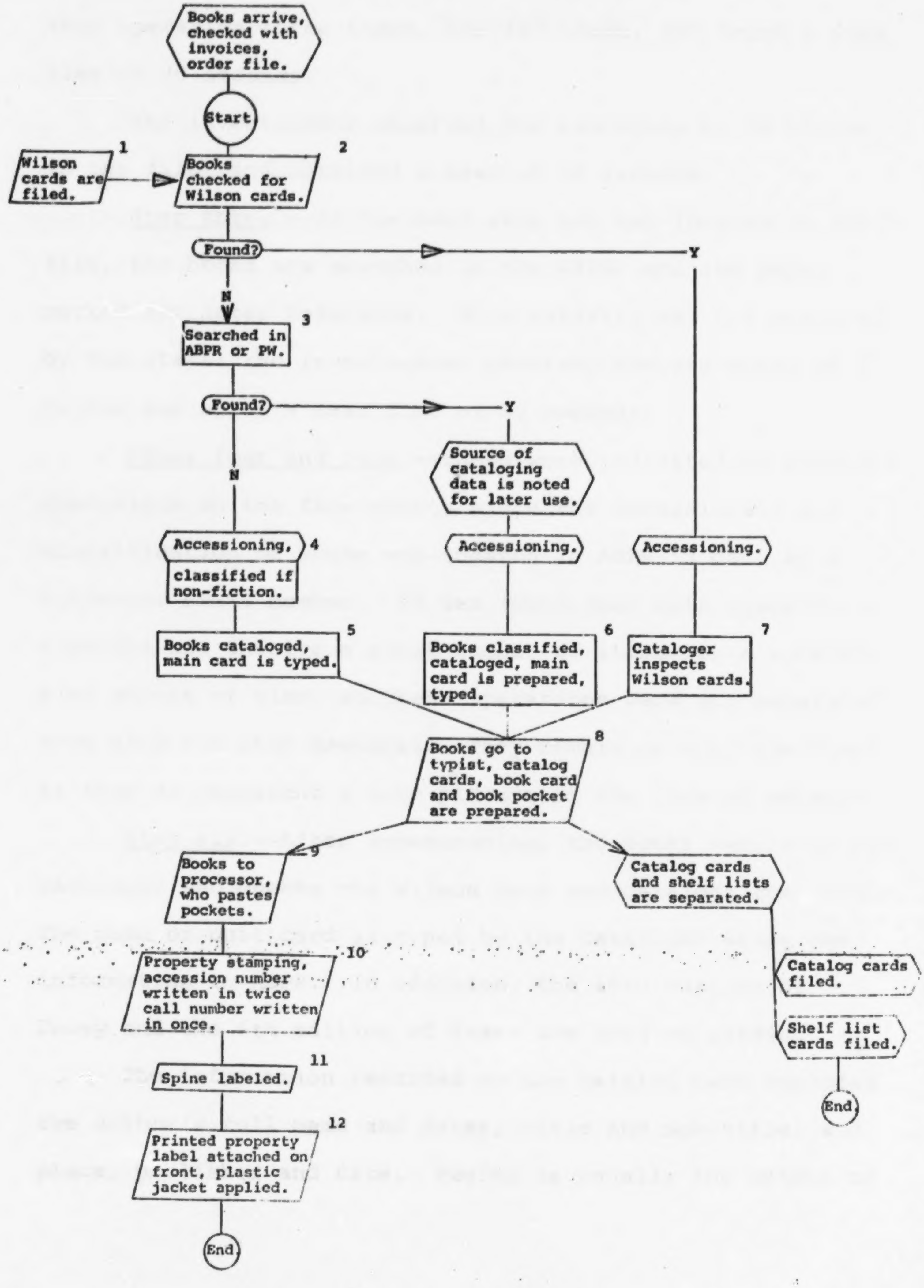
The work room is adjacent to the librarian's office and behind the circulation desk, and is equipped with a washroom. The librarian's secretary is located in his office, and the staff room is in the basement; although the outside staff entrance is via the work room and there is a good deal of coming and going, the traffic patterns seem well established and there is a minimum of interruption.

Specific procedures.--Library Four maintains a subscription with the H. W. Wilson Company for its catalog card service. The library uses 95 percent of these cards for juvenile acquisitions and 25 percent of those received for adult books. The "steps" refer to the numerical sequence on Chart Five.

Step one.--The Wilson cards are filed when received. This event was observed four times, and included 226 items for a mean time of 24 seconds. The investigator measured the time taken to file a group of 50 Wilson cards, and derived a mean of 24 seconds.

Step two.--As each new shipment of books is processed, a check of the Wilson card file is made to verify the

Chart 5 Library Four, Flow Chart


Books arrive, checked with invoices, order file.
Start
1
Wilson cards are filed.
2
Books checked for Wilson cards.
Found?
Y
N
3
Searched in ABPR or PW.
Found?
Y
N
Source of cataloging data is noted for later use.
4
Accessioning, classified if non-fiction.
Accessioning.
Accessioning.
5
Books cataloged, main card is typed.
6
Books classified, cataloged, main card is prepared, typed.
7
Cataloger inspects Wilson cards.
8
Books go to typist, catalog cards, book card and book pocket are prepared.
9
Books to processor, who pastes pockets.
Catalog cards and shelf lists are separated.
10
Property stamping, accession number written in twice call number written in once.
Catalog cards filed.
Shelf list cards filed.
11
Spine labeled.
12
Printed property label attached on front, plastic jacket applied.
End
End

existence or non-existence of card sets. The staff observed this operation three times, for 167 items, and found a mean time of 28 seconds.

The investigator observed the searching of 74 titles in the file, and obtained a mean of 28 seconds.

Step three.--If the card sets are not located in the file, the books are searched in the ABPR, and the pages marked for later reference. This activity was not measured by the staff; the investigator observed the searching of 67 titles and noted a mean time of 60 seconds.

Steps four and five.--These were indicated as separate operations on the flow chart, since the accessioning and classification of books not located in ABPR is done by a different staff member. It was found that this classification did not involve a great number of items nor a substantial amount of time, so these operations were not separated from step six when measured. They remain on the flow chart as they do represent a true picture of the flow of material.

Step six.--After accessioning, the books return to the cataloger who checks the Wilson sets and catalogs the others. The main or unit card is typed by the cataloger using the information in ABPR. In addition, the 16th edition of Dewey and the 6th edition of Sears are used as guides.

The information recorded on the catalog card includes the author's full name and dates, title and sub-title, and place, publisher and date. Paging is usually the extent of the collation. Seldom are notes of any kind recorded. Subject headings and title entries are used but rarely are any other types of added entries given.

The staff recorded the activities incorporated in this step as follows: activity six--author verification, 16 occurrences, 255 items, a mean of 72 seconds; activity seven--descriptive cataloging, 22 occurrences, 283 items, a mean of 192 seconds; activity eight--classification, 17 occurrences, 224 items, a mean of 97 seconds; and activity nine--typing main card, 20 occurrences, 246 items, a mean of 71 seconds. The combined total of the means making up this step derived from staff records, is 432 seconds. The observer could not separate the step in the same manner but derived a total average of 429 seconds based on 19 random observations. Classification and descriptive cataloging accounted for 308 seconds; the remainder was used by author verification at the main catalog and by typing the main cards.

Step seven.--Only cursory checking is done on the Wilson sets. Joint author cards are usually removed, as are subject headings for "easy" juvenile books. As the Wilson cards are received with printed classifications and subject headings, there is seldom a change in these cards. It should be noted that the cards produced by the library have the subject headings typed in red while the Wilson cards are printed in black; thus two kinds of subject headings are interfiled in the catalog. It is stated that the public using the library understands this procedure and that little confusion results.

For classification of books with Wilson cards the staff recorded a mean time of 56 seconds, based on five occurrences and 102 items. Cataloging took a mean time of 83 seconds, based on eight occurrences and 162 items. The investigator derived a mean of 128 seconds on 21 random observations, to compare with the combined mean of 139 seconds compiled by the staff.

Step eight.--Step eight was separated by the staff and by the investigator into two units--the preparation of card sets and the typing of book cards and book pockets. According to the staff record based on 28 occurrences and 399 items, it took a mean average of 63 seconds to type book card and pocket. The investigator made 38 random observations of this activity in two parts and derived a mean time of 54 seconds; 25 seconds for book pockets and 29 seconds for book cards.

For typing card sets, the staff recorded a mean of 267 seconds, based on 20 occurrences and 287 items. The investigator obtained a mean of 287 seconds on non-Wilson sets, based on 23 observations. The typing of Wilson sets, including book cards and pockets, took a mean time of 135 seconds. If card and pocket typing time (54 seconds) is subtracted from this, a mean of 87 seconds can be assumed for preparation of Wilson card sets. This was not measured by the staff, and it mainly involves the preparation of the shelf list card. The shelf list and catalog cards are separated and set aside at this time for filing. There is no formal revision of catalog cards or books. The cataloger or another professional either files or revises the filing, and errors are caught at this time.

Step nine.--The first processing step is the pasting of the pocket. On 15 occurrences of 506 items, the staff recorded a mean of 58 seconds. On 53 random observations the investigator derived a mean of 60 seconds.

Steps ten and eleven.--In steps ten and eleven the processing clerk stamps six property stamps on the book, writes the accession number in twice, and writes the call number once. These operations were actually inseparable for measurement by the investigator, although the staff recorded means of 19 seconds for property stamping (17 occurrences, 538 items) and 72 seconds for labeling (24 occurrences, 498 items). The investigator derived a mean of 79 seconds on 53 random observations, to compare with the combined staff averages of 91 seconds.

Step twelve.--The final processing step is the application of a printed property label on the front cover of the book and the installation of a plastic jacket. It was noted that the clerk often trims the dust wrapper so that it did not extend past the end of the plastic sleeve. The

TABLE 15

LIBRARY FOUR--SUMMARY OF TIMES USED TO PERFORM ACTIVITIES

Activity	4-Week Mean	Mean Times Per Week Week One	Week Two	Week Three	Week Four
1	24	-0-	20	-0-	28
2	-0-	-0-	-0-	-0-	-0-
3	28	25	-0-	-0-	-0-
4	83	66	101	-0-	115
5	56	46	-0-	-0-	71
6	72	59	64	93	72
7	191	196	141	246	202
8	97	92	97	111	55
9	71	75	51	55	92
10	-0-	-0-	-0-	-0-	-0-
12	-0-	-0-	-0-	-0-	-0-
13	267	254	280	248	280
14	63	101	38	57	41
15	72	47	83	88	80
16	58	54	54	60	65
17	19	19	15	16	25
18	117	76	107	147	131

TABLE 16

LIBRARY FOUR--COMPARISON OF TIMES RECORDED BY LIBRARY STAFF AND BY THE INVESTIGATOR

	1	2	3	4	5
	Library Staff			Investigator	
Activity	No. of Observation Periods	Total Items Handled in Observation Period	Mean Time Per Item (in secs.)	Mean Time Per Item (in secs.)	No. of Random Observations
1. Search card data	4	226	24	24	50
2. Request cards	0	0	0	0	0
3. Match cards, books	3	167	28	28	74
4. Catalog, with cards	8	162	83	*	
5. Classify, with cards	5	102	56	*	
Subtotal for 4-5			(139)	128	21
6. Verify authors	16	255	72	*	
7. Catalog, original	22	282	192	*	
8. Classify, original	17	224	97	*	
Subtotal for 6-7			(289)	308	19
9. Type master card	20	246	71	*	
Subtotal for 6-9			(432)	429	19
10. Revise cards	0	0	0	0	0
12. Shelf listing	0	0	0	0	0
13. Reproduce card sets					
Wilson card sets				87	21
Original card sets	20	287	267		
14. Type book cards, pockets	28	399	63	54	38
15. Mark call numbers	24	298	72	*	
16. Paste pockets	15	506	58	60	53
17. Property stamping	17	538	19	*	
Subtotal for 15,17			(91)	79	53
18. Plastic jackets	11	335	117	126	30
	Totals - Wilson		607	586	
		Original	1076	1063	

---

*These activities were not separated by the investigator in making his observations.

TABLE 17

LIBRARY FOUR--SUMMARY OF COSTS PER ACTIVITY

Activity	Mean Time Per Item in Seconds	Labor Cost Per Second	Labor Cost Per Item, Wilson Cards	Labor Cost Per Item, Original Cataloging
1	24	$.00576	$.0138	$ -0-
2	-0-	-0-	-0-	-0-
3	28	.00576	.0161	.0161
4	83	.00896	.0744	
5	56	.00896	.0402	
6	72	.00896		.0645
7	192	.00896		.1720
8	97	.00896		.0869
9	71	.00896		.0636
10	-0-	-0-	-0-	-0-
12	-0-	-0-	-0-	-0-
13* Wilson sets	87	.00576	.0501	
Original	287	.00576		.1653
14	63	.00576	.0363	.0363
15	72	.00485	.0349	.0349
16	58	.00485	.0281	.0281
17	19	.00485	.0092	.0092
18	117	.00485	.0567	.0567
Wilson	607 seconds--		$.3598	
Original	1057 seconds--			$.7336

jackets used were equipped with a pressure sensitive glue on each of the four corners so that no tape was used to affix the jacket to the book.

On eleven occurrences of 335 items, the staff recorded a mean of 117 seconds. The investigator made 30 random observations and derived a mean of 126 seconds.

Commentary.--Book processing at Library Four is very efficient, and books are placed on the shelf with a minimum of delay; there is no cataloging backlog.

The matter of accessioning by a professional, who maintains an accession record as well as a shelf list, may be a questionable procedure, but this process was omitted in the computations of costs so it has no bearing on the study. The process was justified in terms of permitting the reference librarian to become familiar with all the books acquired by the library, and perhaps that is reason enough.

The labor cost of processing books with Wilson cards has been computed at 36 cents, as shown in Table 18. To this must be added the cost of the cards, 13 cents per set, and the cost of supplies, 10 cents, for a cost of 59 cents per title. For cataloging books without Wilson sets, a labor cost of 73 cents has been computed. When the cost of supplies, 10 cents, is added, the total cost becomes 83 cents.

In the year ending December 30, 1964, Library Four processed 4,163 adult books and 1,913 juvenile books, or a total of 6,076. As 95 percent of the Wilson cards for juvenile books are used, and 25 percent of those received for adult books are used, it can be stated that it cost this library 59 cents each to add approximately 2,000 books and 83 cents each to add the remaining 4,000 titles.

It can be noted that a mean time of only 139 seconds was spent by the professional cataloger on Wilson card sets. This is slightly over two minutes each, so it can be assumed that many of these books, probably juvenile literature, get only a cursory glance.

Professional and non-professional time was divided as follows: Of 607 seconds used in processing a title with a card set, 139 seconds were used by the professional and 468 seconds were consumed by the non-professionals. The latter time can be divided into 266 seconds for processing and 202 seconds for typing, filing, searching Wilson cards, etc. Typing Wilson card sets used 87 seconds, and 63 seconds were used in typing book cards and pockets.

Titles without Wilson sets consumed 1,076 seconds in preparation. Here professional tasks accounted for 432 seconds, while the remaining 644 seconds were used by the non-professionals, 266 seconds in processing and 378 seconds in typing and other work. Of this latter time, 287 seconds was devoted to typing card sets.

From Table 17 it can be noted that the investigator varied from the library staff by only 21 seconds on Wilson card cataloging and 13 seconds on original cataloging.

Library Five

The processing in Library Five is done under adverse conditions which will soon be improved. At the present, the space available measures 19'6" by 14'3". This area accomodates the librarian, the cataloger, the typist, and the processor. Two manual typewriters, one large and two small desks, a table, and various cabinets, etc., are housed in this area. New books waiting for processing are kept in an adjoining alcove which also contains a kitchenette, storage cabinets, books for binding, and supplies. Only north daylight is now available via medium-sized windows, and the artificial light seems somewhat inadequate. Although each person has a place in which to do each specific job, adjustments must often be made to avoid crowding another person, and considerable shifting of piles of books, bibliographic tools and equipment takes place during the day. The cataloger shares a typewriter with the head librarian and defers typing of original cards until it is convenient.

Three persons are involved in processing in Library Five. These are a professionally trained cataloger, a clerk-typist, and a clerk-processor. Each of these people are assigned to cover a portion of the public service time in circulation and reference, but those periods not scheduled are reserved, barring an unusual rush of business, to uninterrupted work on the various steps as outlined in the processing procedure.

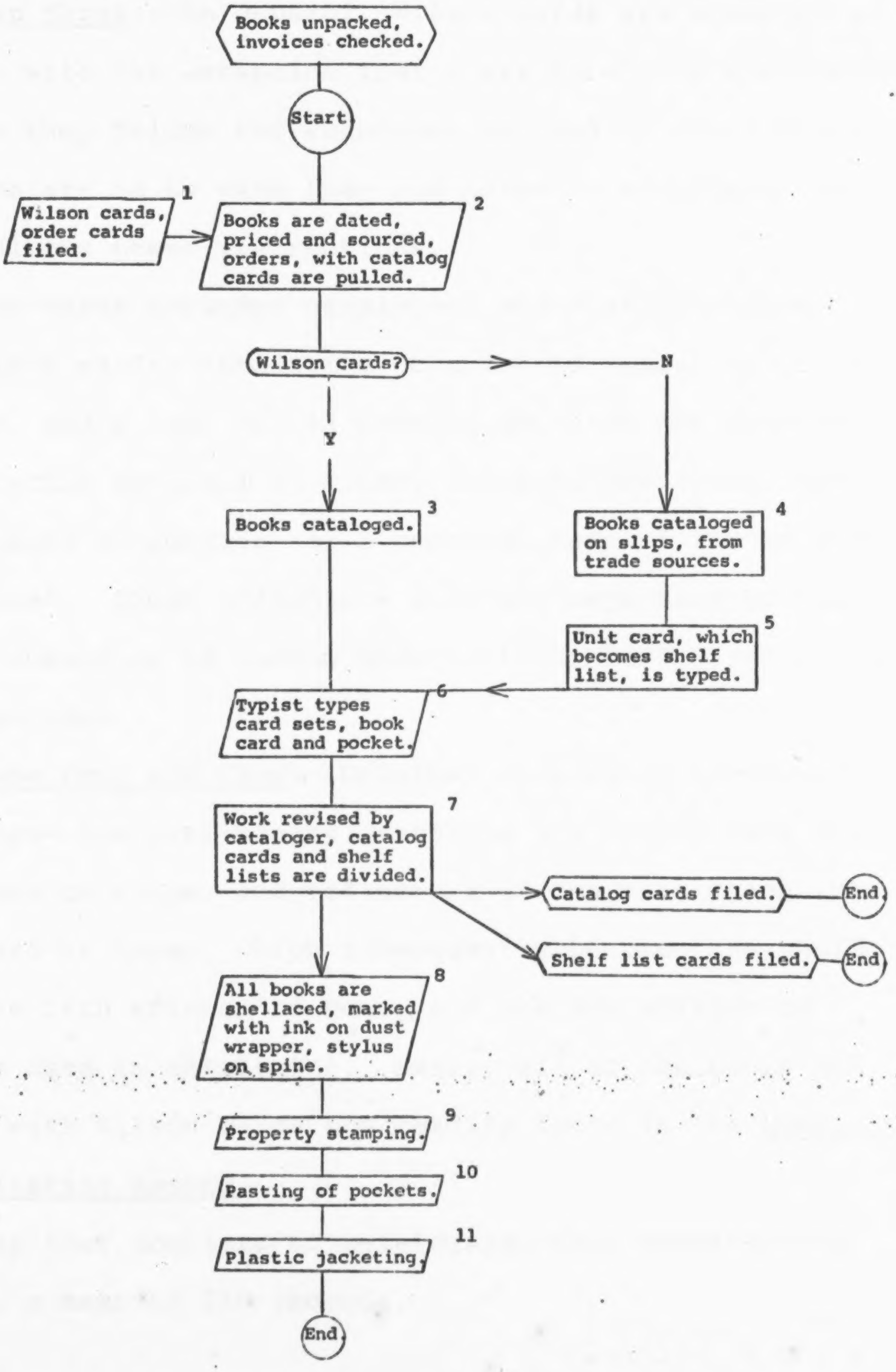
Specific procedure.--The time and cost analyses are summarized in graphic form in Tables 19-20 which present the results of the two sets of observations obtained; one set by the library staff and the other by the researcher. A visual picture is presented of the work flow in Chart Six and the descriptions of the following numbered steps refer to those on the flow chart. Cost figures are given only in Table 20.

Steps one and two.--After the books have been unpacked and checked with the invoice, the order cards are removed from the order file. The Wilson cards have usually been placed with the order card prior to this time inasmuch as these cards are used as a book selection tool and 95 percent of the cards received in the Wilson subscription are used. Those books which have no cards are set aside for cataloging, using the American Book Publishing Record or other trade source. The order cards are then destroyed and the book is priced, dated, and sourced.

Step one, the filing of Wilson cards and/or order cards, took a mean average of 49 seconds. This operation occurred once during the four week trial and was based on 17 items. The researcher made 28 random observations and arrived at a mean time of 49 seconds.

Step two, the location of cards, dating, sourcing, and sorting of books, occurred ten times during the observed period, involved 287 items, and a mean of 90 seconds was

Chart 6 Library Five, Flow Chart


Books unpacked, invoices checked.
Start
1
Wilson cards, order cards filed.
2
Books are dated, priced and sourced, orders, with catalog cards are pulled.
Wilson cards?
N
Y
3
Books cataloged.
4
Books cataloged on slips, from trade sources.
5
Unit card, which becomes shelf list, is typed.
6
Typist types card sets, book card and pocket.
7
Work revised by cataloger, catalog cards and shelf lists are divided.
Catalog cards filed.
End
Shelf list cards filed.
End
8
All books are shellaced, marked with ink on dust wrapper, stylus on spine.
9
Property stamping.
10
Pasting of pockets.
11
Plastic jacketing.
End

obtained. The researcher conducted nine random observations for a mean of 90 seconds.

Step three.--In general, Wilson cards are accepted as received, with the exception that classifications are checked to insure they follow the schedules as used in the library. If changes are to be made they are noted on slips and the typist follows these instructions.

Step three includes cataloging and classification using Wilson cards; cataloging occurred 13 times, involved 278 items, and a mean of 131 seconds per item was obtained. Classification occurred 15 times, involved 294 items, and mean averaged 67 seconds, or a combined mean of 198 seconds was obtained. These operations were not separated by the observer--based on 18 random observations, he derived a mean of 180 seconds.

Steps four and five.--Original cataloging involves two major steps--the preliminary searching for source data which are written on slips, and refinement of the cataloging when a unit card is typed, which subsequently becomes the shelf list. The 16th edition of Dewey and the 8th edition of Sears are used in cataloging. Nearly all of the books not provided with Wilson cards are readily found in the American Book Publishing Record.

Step four consists of cataloging--four observations, 68 items, a mean of 210 seconds.

Step five, preparation of the master card, consists of eight observations, 90 items, a mean of 211 seconds. Cataloging and classification were combined as one observation in the researcher's time study, and only eight random observations could be made because of the lack of these books. A mean average of 672 seconds was obtained, to compare with the 567 seconds derived by combining the above figures. Twenty random observations were made of typing the unit card, step five; a mean of 165 seconds resulted.

Step six.--This includes the preparation of card sets and typing the book card and pocket. For Wilson cards this involves typing the headings and the call numbers on the cards, completing the shelf list, and typing the card and pocket. For the original cataloging, the typist uses the card prepared by the cataloger as the work guide; when she has finished the unit card and the additional entries, this work card is used in the shelf list, and the book card and pocket are typed. This operation occurred eight times for both kinds of sets, included 312 items, and the mean was 246 seconds. The investigator separated the observations into those for Wilson cards and for original cataloging. On 20 random observations for Wilson card sets, book cards and pockets, a mean of 182 seconds was obtained. On 15 random observations of typing original card sets, book cards and pockets, a mean of 262 seconds was derived. Thus a mean for both types of sets could be placed at 227 seconds, compared with the staff record of 246 seconds. Book cards and pockets account for 37 seconds of this time, as obtained by nine trials on 317 items, and confirmed by 35 random observations kept by the investigator.

Step seven.--Revision of cards took place ten times during the period, 334 items were involved, and a mean of 87 seconds was obtained. On 40 random observations, a mean of 58 seconds was obtained by the investigator.

Step eight.--This is the first processing stage. All book jackets are removed, the call numbers are marked with a stylus on transfer paper, and the spines of all books are shellacked. Based on nine occurrences involving 318 items, a mean of 124 seconds was obtained for this activity. The investigator made 27 random observations and derived a mean of 108 seconds.

Step nine.--Property stamping is done in six places; top, bottom, foredge, title page, verso of title page, and the following page. This operation occurred nine times, involved 379 items, and resulted in a mean of 57 seconds. The investigator made 35 random observations of this operation and derived a mean of 35 seconds.

Step ten.--Pasting of pockets was counted ten times, included 363 items, and the mean was 69 seconds. The investigator made 18 random observations of this step and derived a mean of 60 seconds.

TABLE 18

LIBRARY FIVE--SUMMARY OF TIMES USED TO PERFORM ACTIVITIES

Activity	4-Week Mean	Mean Times Per Week Week One	Week Two	Week Three	Week Four
1	49	-0-	49	-0-	-0-
2					
3	90	72	92	-0-	97
4	131	150	109	140	106
5	67	55	66	73	85
6					
7	357	-0-	436	-0-	120
8	210	202	174	450	96
9	211	112	253	-0-	187
10	87	55	102	64	95
12					
13	246	214	277	300	-0-
14	30	24	35	-0-	30
15	124	100	221	114	96
16	69	81	-0-	60	58
17	54	48	35	64	60
18	105	83	128	93	137

TABLE 19

LIBRARY FIVE--COMPARISON OF TIMES RECORDED BY LIBRARY STAFF AND BY THE INVESTIGATOR

	1	2	3	4	5
	Library Staff			Investigator	
Activity	No. of Observation Period	Total Items Handled in Observation Period	Mean Time Per Item (in secs.)	Mean Time Per Item (in secs.)	No. of Random Observations
1. Search card data	4	17	49	49	28
2. Request cards	0	0	0	0	0
3. Match cards, books	10	287	90	90	9
4. Catalog, with cards	13	278	131	*	
5. Classify, with cards	15	294	67	*	
Subtotal for 4-5			(198)	180	18
6. Verify authors	0	0	0	0	0
7. Catalog, original	4	68	357	*	
8. Classify, original	7	82	210	*	
Subtotal for 7-8			(567)	672	8
9. Type master card	8	90	211	165	20
10. Revise cards	10	334	87	58	40
12. Shelf listing	0	0	0	0	0
13. Reproduce card sets	8	312	246		
Wilson card sets				185	20
Original card sets				262	15
14. Type book card, pocket	9	317	30	37	35
15. Mark call numbers	9	318	124	108	27
16. Paste pockets	10	363	69	60	18
17. Property stamping	19	377	54	35	35
18. Plastic jackets	8	281	105	59	19
		Totals - Wilson	916	861	
		Original	1618	1558	

---

*These activities were not separated by the investigator in making his observations.

TABLE 20

LIBRARY FIVE--SUMMARY OF COSTS PER ACTIVITY

Activity	Mean Time Per Item in Seconds	Labor Cost Per Second	Labor Cost Per Item, Wilson Cards	Labor Cost Per Item, Original Cataloging
1	49	$.00635	$.0311	$.0311
2	-0-	-0-	-0-	-0-
3	90	.00635	.0571	.0571
4	131	.00818	.1072	
5	67	.00818	.0548	
6	(included in #7)			
7	357	.00818		.2920
8	210	.00818		.1718
9	211	.00818		.1726
10	87	.00818	.0712	.0712
12	-0-	-0-	-0-	-0-
13* Wilson cards	185	.00416	.0770	
Original	262	.00416		.1090
14	(30)	(included in #13)		
15	124	.00635	.0784	.0784
16	69	.00635	.0438	.0438
17	54	.00635	.0343	.0343
18	105	.00635	.0667	.0667
Wilson	961 seconds--		$.6216	
Original	1618 seconds--			$1.1280

*The investigator measured the typing of card sets for Wilson cards and original cataloging separately. The staff mean for both types of card sets was 246 seconds; the labor cost is thus $.1023.

Step eleven.--The records involving the installation of plastic jackets were kept eight times; a mean of 105 seconds for each of 281 items was achieved. The investigator made 19 random observations and derived a mean of 59 seconds. At this point, the jackets are off the books, having been removed to permit the shellacking of the spine. The dust wrappers are inserted into the plastic sleeves, the bottom is folded over with a bone folder, replaced on the book and taped in four places.

Commentary.--As can be seen in Table 20, the time taken for cataloging and processing books with Wilson cards is 961 seconds, at a cost of $.62. Original cataloging consumes 1,618 seconds, at a cost of $1.13. It will be noted, from Table 19, that the investigator varied from the staff record by 55 seconds on Wilson cataloging and 50 seconds on original cataloging. Activity eighteen, putting on plastic jackets, varied by 46 seconds. There was a wide difference in the measurements for this activity between the investigator's record and the staff record in each library, so comments upon this factor will be reserved for the general summary section.

It is rather interesting to note the balance of professional and clerical time in the use or non-use of Wilson cards. Of the mean of 961 seconds derived in using Wilson cards, 491 seconds are spent on processing, 285 seconds on cataloging and 185 seconds on typing. Of 1,618 seconds for original cataloging, 865 seconds are spent on cataloging, 491 seconds on processing, and 262 seconds on typing.

Library Five processed 2,802 books in the year ending April 30, 1964. The Wilson Company cataloged 3,018 titles. The staff states that 95 percent of the Wilson cards received are used. The staff also states that the Wilson subscription is used, in part, as a book selection tool, so it can be assumed that the labor cost of 62 cents per volume is representative of most of the cataloging done in Library Five. If the cost of the Wilson subscription, 13 cents per title, and the cost of the supplies used on the books, estimated at 10 cents each, are added to the labor cost of 62 cents, a cost of 85 cents can be stated as the cost of cataloging and processing a book in Library Five. Should Library Five begin to add more titles each year, necessitating more original cataloging, at a labor cost of $1.13 per volume, plus 10 cents for supplies, or a total cost of $1.23 per volume, it may be feasible for it to investigate joining a processing center.

Results of statistical tests.--The tests for the significance of difference between the mean times recorded by the staff and by the investigator for each activity were described in Chapter III, p. 59. Sixteen of 43 comparisons submitted to these tests showed a significant difference at the .01 level of confidence. With the exception of two of these cases, the mean times obtained by the investigator were lower per activity than were the times recorded by the staff. Although the means themselves did not appear too unequal in most of these cases, the differences of sample size and variance in the two sets of observations suggest that tighter control of staff observations would be desirable, or that the independent observer should make more observations.

The accumulation of make-ready and put-away times, together with all the potential varieties of interruptions that are possible over several hundred observations, set a pattern of wide dispersion in the variances of the staff record. In the 20 to 40 stop-watch times obtained by the investigator, this dispersion did not occur. This series of stop-watch observations included interruptions when they happened, but there were not enough cases randomly incorporated in which interruptions occurred to balance the comparison. Although the means were not greatly different, the differences about the means of many individual cases in one set of observations were so great as to show a statistically significant difference on a third of the comparisons.

Comparisons of Times and Costs Over All Libraries

The final tables in this chapter compare the times and costs assigned to each library in several summary forms.

Table 21 displays the division of time between professional and clerical tasks in each library.

TABLE 21

DIVISION OF PROFESSIONAL AND NON-PROFESSIONAL TIME

Time for Adding a Title	Libraries 1	2	2	4	5	Mean
Original Cataloging	1424	932	860	1076	1618	1139
Professional Time (in secs.)	805	298	654	432	865	611
Non-professional Time	673	634	206	644	753	582
Typing Card Sets	310	303	248	287	262**	282
Processing Time	311	285	206	266	491	312
Using Card Sets		998	604	607	961	792
Professional Time (in secs.)		261	398	139	285	271
Non-professional Time		737	206	468	676	522
Typing Card Sets		222**	81*	87	185**	144
Processing Time		285	206	266	491	312

*Professional types card sets.

**Includes 30 seconds for cards and pockets.

Time for professional tasks on each title added ranged from 298 seconds or approximately five minutes to 865 seconds, or about 14 1/2 minutes, when original cataloging was done. The use of printed card sets substantially reduced the amount of professional time spent. Table 22 is a summary of the

TABLE 22

SUMMARY OF TIMES AND COSTS FOR ALL LIBRARIES

	Libraries					
	1	2	3	4	5	Mean
Original cataloging--time in seconds	1424	932	860	1076	1618	1139
Original cataloging--cost	$1.05	$.73	$.72	$.73	$1.13	$.87
Supplies	.10	.10	.10	.10	.10	.10
Total	1.15	.83	.82	.83	1.23	.97
Cataloging with cards--time in seconds	*	998	604	607	961	792
Cataloging with cards--cost		$.73	$.48	$.36	$.62	$.55
Cost of cards		.25	.13	.13	.13	.16
Supplies		.10	.10	.10	.10	.10
Total		1.08	.71	.59	.85	.81
Number of books cataloged						
with cards	*	2700	2250	2858	2660	
without cards	6344	144	3450	3218	140	
Total	6344	2844	5700	6076	2800	4755

*Cards are not used at Library One.

times and costs for all libraries; the table also shows how many card sets were used by each library and the total number of books cataloged.

Table 23 is a comparison of the mean average times over all libraries for each activity. The reader should be

TABLE 23

OVERALL TIME COMPARISONS, IN SECONDS

	Libraries					
Activity	1	2	3	4	5	Mean
1. Search card data		101	62	24	49	59
2. Request cards		113				
3. Match cards, books		69	28	28	90	54
4. Catalog, with cards		205	123	82	131	135
5. Classify, with cards		56	74	56	67	63
6. Verify authors	131	53	62	72		80
7. Catalog, original	328	171	200	191	357	249
8. Classify, original	148	74	86	97	210	123
9. Type master card	120	44		71	211	112
10. Revise cards	24				87	
12. Shelf listing	82		30			
13. Reproduce card sets	310	257	146	267	262	248
14. Type book card, pocket	52	34	33	62	30	42
15. Mark call numbers	56	32	42	72	124	67
16. Paste pockets	52	57	32	58	69	54
17. Property stamping	25	52	19	19	54	34
18. Plastic jackets	106	110	77	116	105	103

cautioned against indiscriminate reference to this table without referring to the explanations in the text, as the processes at each library are seldom the same.

Henry Voos, in measuring the times of various clerical activities, has compared his results with some earlier studies reported in library literature. Table 24 is a summary of the comparison for pasting pockets, together with the figures from the present study. Only a few of these comparisons could be made as the processes differ so widely in make-ready time, transport, delay, etc. The time for pasting of pockets as reported in the literature and summarized by Voos ranged from a mean time of 28 seconds to 98 seconds, with an overall mean time from five studies of 58 seconds. For the present study, the mean time over five libraries was 54 seconds. Patricia Ann Sachs, who has done a cataloging cost study in five small public libraries for the Method Study in Small Public Libraries,[4] derived a mean time of 42 seconds for this operation.

The times derived for some other operations are comparable. Voos made a series of observations on the installation of plastic jackets at Fairleigh Dickinson University and derived a mean time of 80 seconds for broad-spined books and 92 seconds for narrow-spined. The investigator's record varied more for activity eighteen, plastic jacketing, than for any other in the times recorded by staff members. The investigator obtained a mean time over all libraries of 71 seconds; the records kept by the staff members were computed to a mean time of 103 seconds. The investigator's time was consistently below that of the staff record. Sachs obtained

---

[4] Patricia Ann Sachs, "Cataloging Cost Study in Small Public Libraries," Appendix A of: Donald D. Dennis, Simplifying Work in Small Public Libraries (Philadelphia: Drexel Institute of Technology, 1965), p. 74.

TABLE 24

OBSERVED DATA COMPARED WITH DATA REPORTED IN THE LITERATURE: PASTING POCKETS

	Observed Data-- Five Libraries	Reported in Literature-- Seven Libraries[5]
	52 seconds	27.6 seconds
	57 seconds	50.4 seconds
	33 seconds	51.6 seconds
	58 seconds	55.8 seconds
	69 seconds	60.0 seconds
Mean	54 seconds	65.4 seconds
		97.8 seconds
		58.2 seconds

Sachs' study[6]--mean of 42 seconds.

a mean time of 101 seconds for plastic jacketing. The discrepancy in the record obtained by the investigator and that obtained by the library staff, almost 30 seconds, may be attributable to an error of measurement. While the investigator only measured the operation as a unit from the moment each book was picked up and returned, the staff member measured the activity by starting the time record when a truck or group of books were taken aside to be completed. This would include transport, make-ready time, delay, cutting the edges of the dust wrappers, and locating various sizes of plastic wrappers.

---

[5] Voos, *op. cit.*, p. 18.

[6] Sachs, *op. cit.*, p. 74-75.

Sachs noted costs for cataloging and processing for small libraries. For the kinds of books and alternative methods of cataloging, she established the following costs:

Fiction--original cataloging	$0.25
Fiction--using Wilson cards	.29
Non-fiction--original cataloging	.45
Non-fiction--using Wilson cards	.30
Non-fiction--using L.C. cards	.74

To these figures she adds 17 cents for the cost of time and materials for processing. The charges would range from 42 cents to 91 cents per book. Clerical costs were computed at $1.25 per hour.

Mildred W. Sandoe, in making a study of the Lorain County (Ohio) library system,[7] established costs of processing and original cataloging for eight public libraries. The per volume costs were as follows: $.39, $.47, $.55, $.74, $.75, $1.02, $1.03, and $1.44.

In attempting to provide a basis for comparing times on various activities performed in cataloging and processing a great deal of detailed matter was presented for the five individual libraries. It was desired that this effort, included to add to the growing body of data toward standard times for certain activities, be useful in other situations. The subsequent section treats of the product emerging from these activities, and the attempt to ascertain if the time spent has a relationship to the completeness of the product.

---

[7] Mildred W. Sandoe, Lorain County Library Survey, (Columbus, Ohio, Library Foundation, 1963), p. 74.

CHAPTER VII

CHARACTERISTICS AND DUPLICATION OF CATALOGING IN NON-MEMBER LIBRARIES

Duplication of Cataloging

In order to determine the amount of duplication that might be encountered among the five non-member libraries, as well as to locate some titles that each library might hold in common (for comparison of cataloging) a list of books was submitted to each library. The librarians checked the list against the holdings of their libraries, and returned the list to the investigator who compared the results, noted those books which were held in common by all libraries and visited each library, making a copy of the catalog cards for those books. The list of books was taken from the October 1, 1964, issue of Booklist and consists of 101 adult titles and 42 juvenile titles. It was hoped that at least five titles without Wilson cards would be held by all libraries so that comparisons of cataloging could be made. Although the periodical Booklist indicates by the (W) which books will have Wilson cards available, it was found that this list was not all-inclusive; some titles which were later found to have Wilson cards were not indicated in this listing. There was no title without Wilson cards which had been cataloged internally by every library; of the six titles purchased by all libraries, and the fourteen bought by four libraries, all had Wilson cards available.

Rather revealing is the disparity of purchases among these five libraries. As Tauber pointed out in his survey of the Nassau System:

> The consultants are convinced that centralized processing can never be achieved unless it is based upon a substantial degree of coordination of the selection of new titles, and a somewhat lesser but still considerable coordination of the time of ordering of additional copies and replacement copies of particular titles.[1]

Table 25 shows that of the 101 adult titles listed in one issue of Booklist, six books were held by all libraries, and shows that Wilson cards were available for each of these.

TABLE 25

TITLES IN BOOKLIST (OCTOBER 1, 1964) HELD IN COMMON BY THE FIVE NON-MEMBER LIBRARIES

No. of Libraries Holding	Adult Titles		Juvenile Titles		Total Titles		Wilson Cards Available
	Number	Percent	Number	Percent	Number	Percent	
5	6	6	2	4	8	6	8
4	14	14	16	38	30	21	20
3	19	19	10	24	29	20	19
2	23	23	4	9	27	19	14
1	22	22	7	17	29	20	11
0	17	16	3	8	20	14	5
	101	100	42	100	143	100	87

---

[1] Maurice F. Tauber and Robert E. Kingery, The Central Technical Processing of the Nassau Library System (Hempstead, New York: Nassau Library System, 1962), p. 19-20.

Fourteen titles were owned by four libraries, and all had Wilson cards available. Wilson cards were available for all the titles on the juvenile list; although only two juvenile books were purchased by all the libraries, 16 of the 42 titles were purchased by four libraries, and over 65 percent of the list was purchased by at least three libraries, whereas only 39 percent of the adult list was purchased by three or more libraries.

This lack of duplication in titles has been one of the difficulties in the Oak Park system; this and a lack of coordination in ordering make the value of centralized processing quite tenuous. The low degree of duplication among the five libraries in this study shows that it is necessary to get a large number of libraries participating in a centralized system in order to get the five copies of a title at a time that many processing centers believe they must handle in order to catalog books at optimum efficiency.[2] However, adding more libraries increases the total volume; the percentage of titles bought by fewer than five libraries may decrease, but the number of individual titles which are purchased by fewer than five libraries will increase and the initial cataloging time for these titles will remain the same. For two of the five libraries in this study, the 147 titles on the list represent fully 5 percent of their annual acquisitions.

---

[2] Moore, op. cit., p. 309.

Characteristics of Cataloging

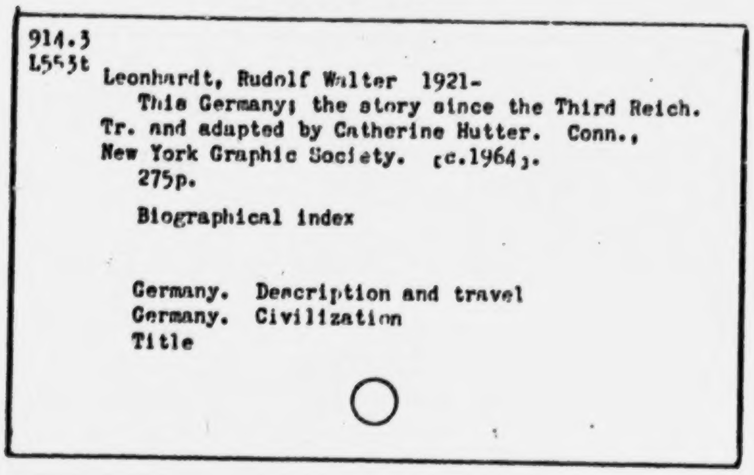
Figures 3 through 8 show the level or depth of cataloging done by each library. Although the attempt to locate books cataloged by all libraries was not successful, there are several titles that were cataloged by more than one library. It can be noted that three of the five libraries depend on LC or Wilson cards to a great extent, and only a small portion of their acquisitions were cataloged by the staff, hence the scarcity of common titles. Most of the titles were published in 1964, and all were cataloged in that year.

There is little that can be said about the differences in the cataloging; each library considers its cataloging adequate for local purposes. However, the concern expressed in the literature about the disadvantages of possible over-simplification of cataloging done in processing centers does not seem to be warranted in this comparison and there are some comments that can be made about the cataloging of the Center and of the non-member libraries. Tracings usually appear on the back of the cards, except for those of the Center; Library Five uses lined card stock, and the vertical lines show faintly on the reproductions.

The Processing Center uses LC cataloging copy whenever possible, taken from proof sheets or the National Union Catalog. In some cases, this means only photo-copying from the proof sheet as in Figures 3 and 4. The title by

FIG. 3 - COMPARISON OF CATALOGING; MAIN ENTRIES FOR TWO TITLES

LIBRARY ONE

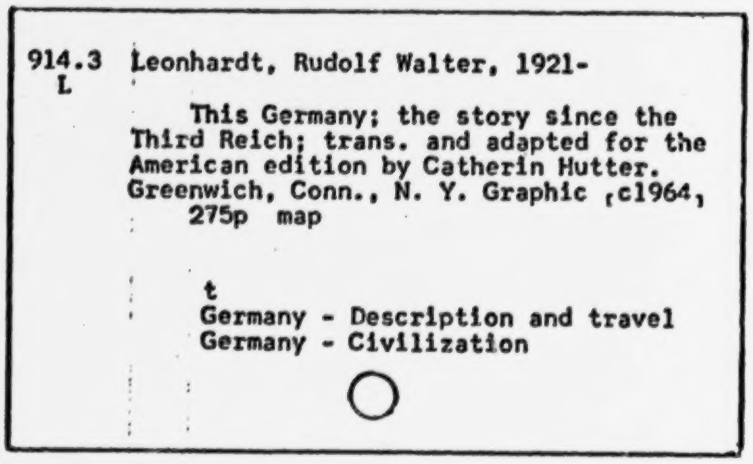


914.3
L553t Leonhardt, Rudolf Walter 1921-
This Germany; the story since the Third Reich. Tr. and adapted by Catherine Hutter. Conn., New York Graphic Society. [c.1964].
275p.

Biographical index

Germany. Description and travel
Germany. Civilization
Title

LIBRARY FOUR

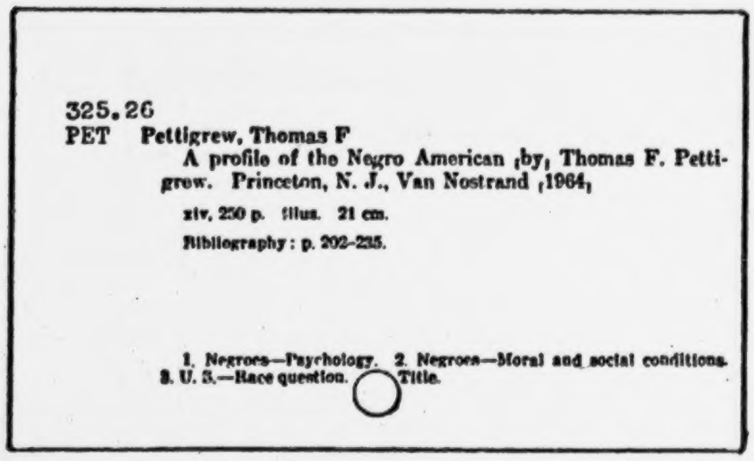


914.3 Leonhardt, Rudolf Walter, 1921-
L

This Germany; the story since the Third Reich; trans. and adapted for the American edition by Catherin Hutter. Greenwich, Conn., N. Y. Graphic [c1964]
275p map

t
Germany - Description and travel
Germany - Civilization

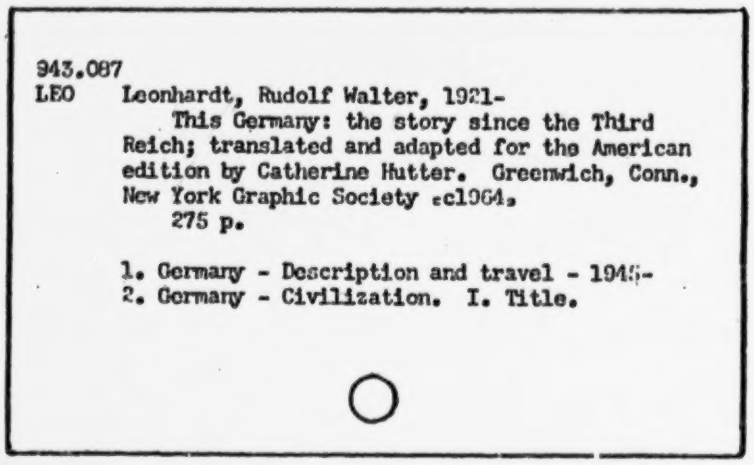
PROCESSING CENTER



325.26
PET Pettigrew, Thomas F
A profile of the Negro American [by] Thomas F. Pettigrew. Princeton, N. J., Van Nostrand [1964]
xiv, 250 p. illus. 21 cm.
Bibliography: p. 202-235.

1. Negroes—Psychology. 2. Negroes—Moral and social conditions. 3. U. S.—Race question. I. Title.

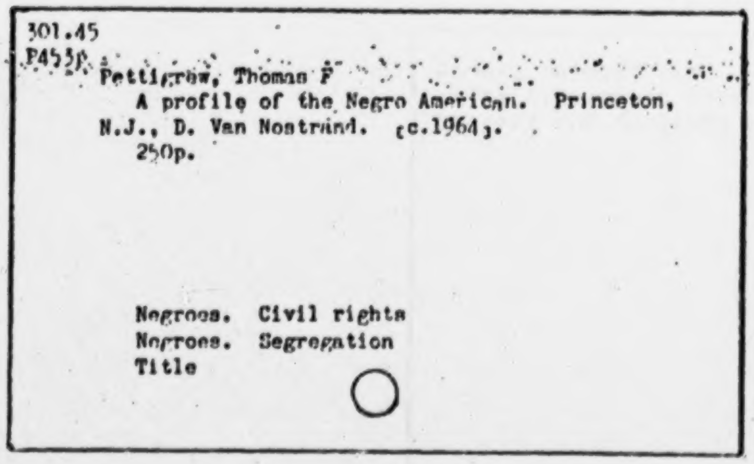
PROCESSING CENTER



943.087
LEO Leonhardt, Rudolf Walter, 1921-
This Germany: the story since the Third Reich; translated and adapted for the American edition by Catherine Hutter. Greenwich, Conn., New York Graphic Society [c1964]
275 p.

1. Germany - Description and travel - 1945-
2. Germany - Civilization. I. Title.

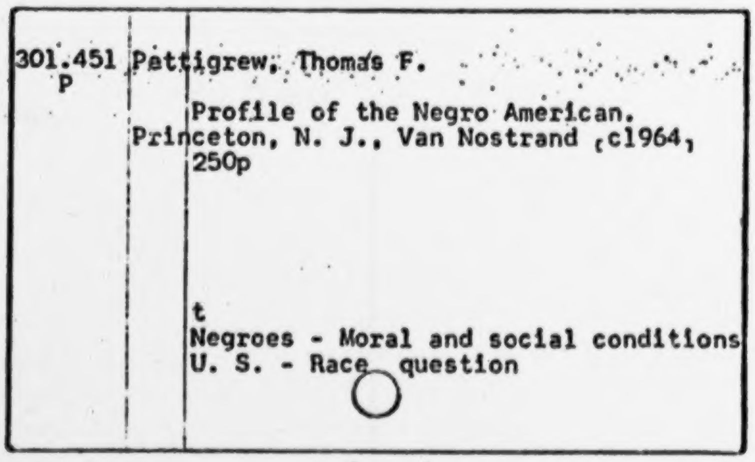
LIBRARY ONE



301.45
P453p Pettigrew, Thomas F
A profile of the Negro American. Princeton, N.J., D. Van Nostrand. [c.1964].
250p.

Negroes. Civil rights
Negroes. Segregation
Title

LIBRARY FOUR



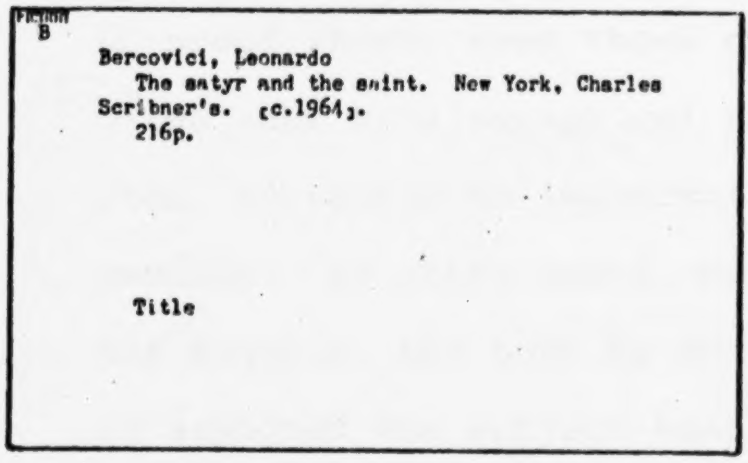
301.451 Pettigrew, Thomas F.
P

Profile of the Negro American. Princeton, N. J., Van Nostrand [c1964]
250p

t
Negroes - Moral and social conditions
U. S. - Race question

FIG. 4 - COMPARISON OF CATALOGING; MAIN ENTRIES FOR TWO NOVELS

LIBRARY ONE

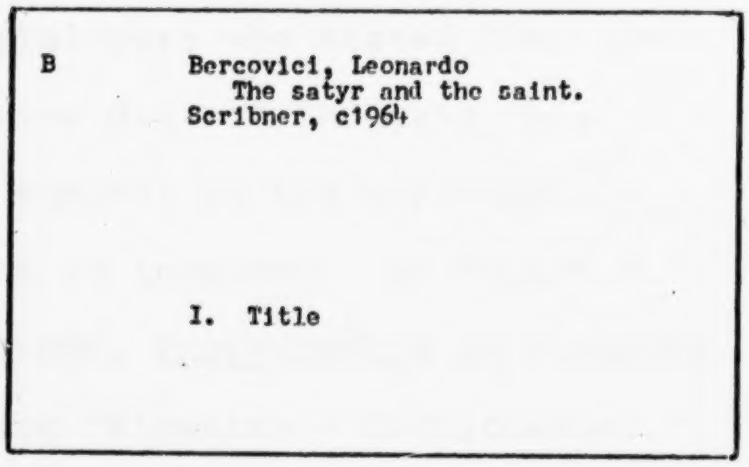


FICTION
B

Bercovici, Leonardo
The satyr and the saint. New York, Charles Scribner's. [c.1964].
216p.

Title

LIBRARY FIVE

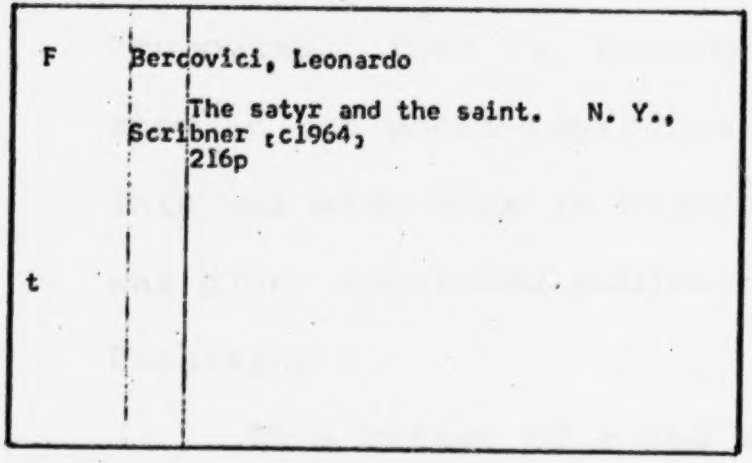


B

Bercovici, Leonardo
The satyr and the saint.
Scribner, c1964

I. Title

LIBRARY FOUR

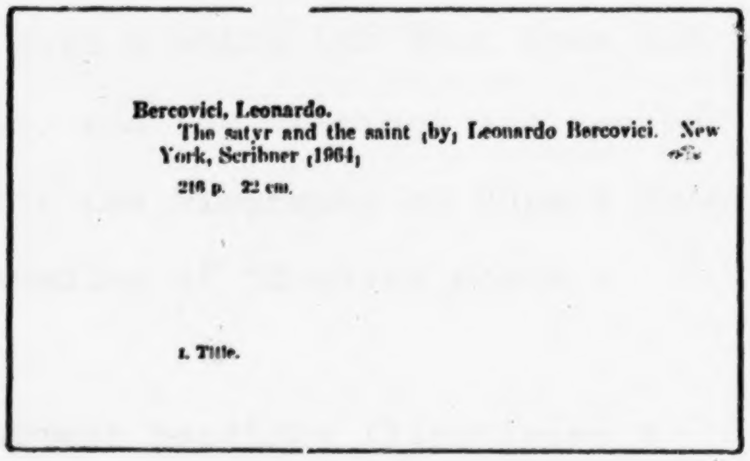


F

Bercovici, Leonardo
The satyr and the saint. N. Y., Scribner [c1964]
216p

t

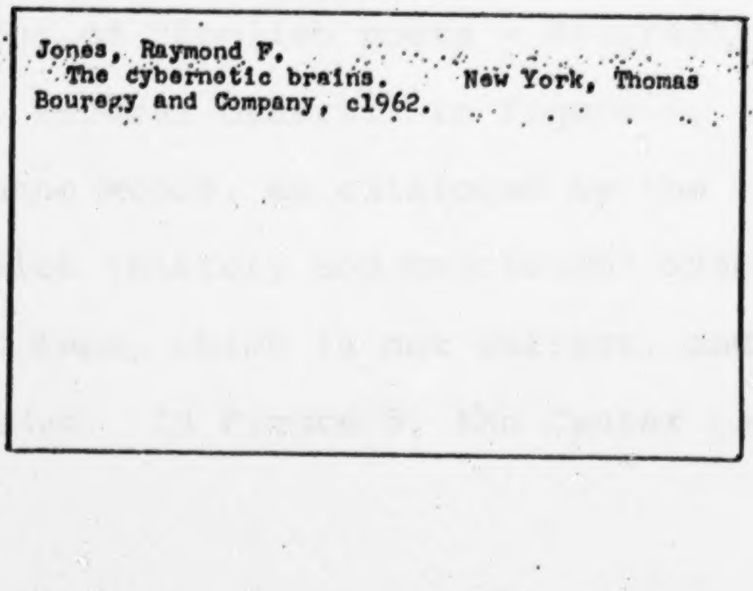
PROCESSING CENTER



Bercovici, Leonardo.
The satyr and the saint [by] Leonardo Bercovici. New York, Scribner [1964]
216 p. 22 cm.

I. Title.

LIBRARY TWO



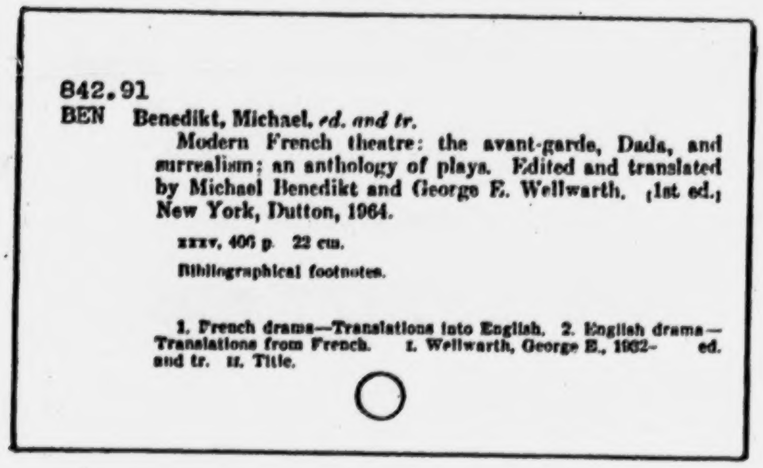
Jones, Raymond F.
The cybernetic brains. New York, Thomas Bouregy and Company, c1962.

Pettigrew, A Profile of the Negro American, illustrated in Figure 3, contains 536 numbered references to other bibliographical sources on this topic. This fact was not brought out by any library except the Center which used the LC proof sheet; even those catalogers who stated that they often make bibliographical notes did not indicate this item, certainly an important subject in the contemporary setting. In other cases, more is involved. In Figure 5, for example, the book by Peterson, Encyclopedia of Firearms, is assigned the subject heading "Firearms - Dictionaries," by LC. When the cataloging staff wishes to make changes, as they did here, the entire subject tracing paragraph is "snopaked," that is, covered with a white ink that does not show in the photo-reproduction, and the tracings are retyped. This was also done in Figure 6; the biography of Rupert Brooke was given the added subject heading of "English poets - Biography."

This matter of added subject headings illustrates a point that the writer tried to make in Chapter IV, commenting on the problems of operation in the Processing Center. The subject heading of "English poets - Biography" seems superfluous, as do several others. In Figure 6, the critical work on Marianne Moore, as cataloged by the Center, has the sub-division "History and criticism" added to the subject entry for her name, which is not correct, and in any case seems extraneous. In Figure 5, the Center has added the

FIG. 5 - COMPARISON OF CATALOGING; MAIN ENTRIES FOR THREE TITLES

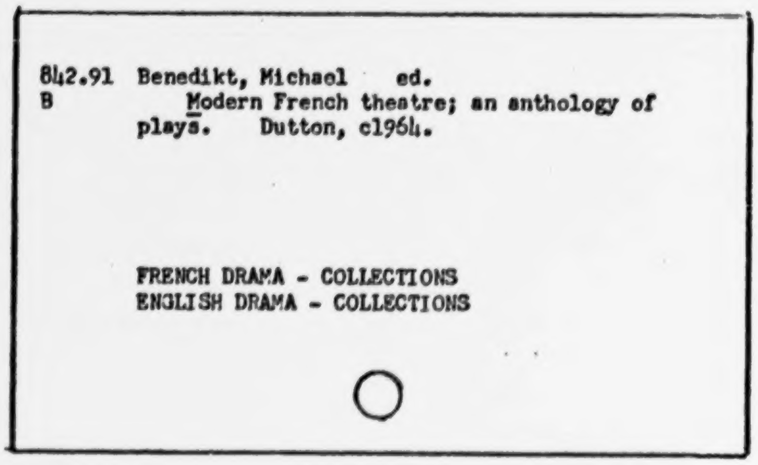
PROCESSING CENTER



842.91
BEN Benedikt, Michael, *ed. and tr.*
Modern French theatre: the avant-garde, Dada, and surrealism; an anthology of plays. Edited and translated by Michael Benedikt and George E. Wellwarth. ₍1st ed.₎ New York, Dutton, 1964.
xxxv, 406 p. 22 cm.
Bibliographical footnotes.

1. French drama—Translations into English. 2. English drama—Translations from French. I. Wellwarth, George E., 1932- ed. and tr. II. Title.

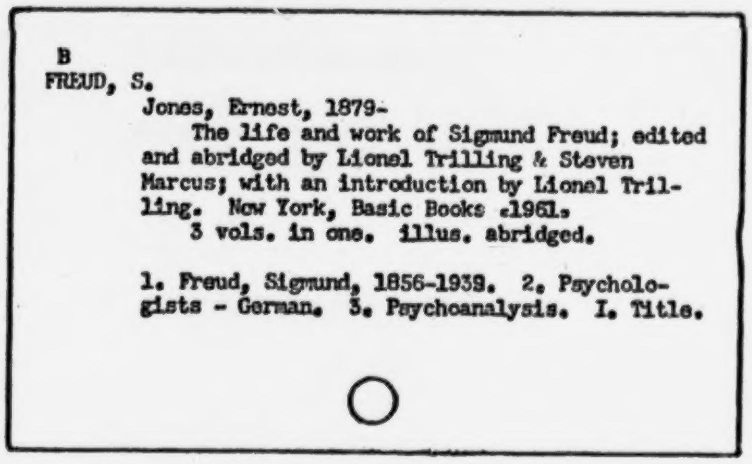
LIBRARY THREE



842.91 Benedikt, Michael ed.
B Modern French theatre; an anthology of plays. Dutton, c1964.

FRENCH DRAMA - COLLECTIONS
ENGLISH DRAMA - COLLECTIONS

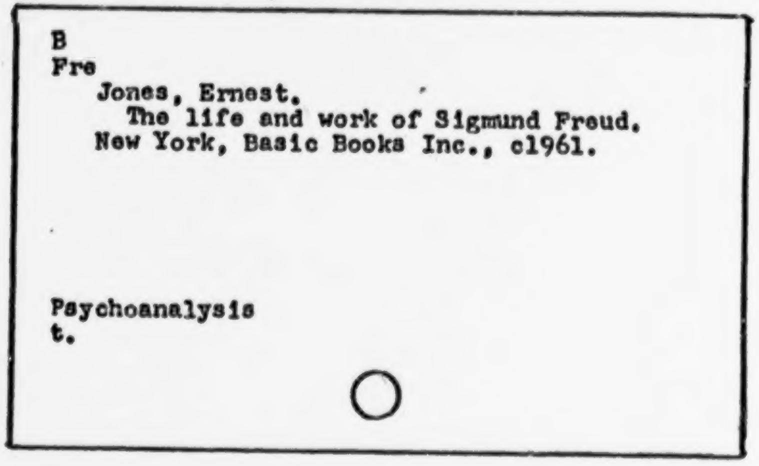
PROCESSING CENTER



B
FREUD, S.
Jones, Ernest, 1879-
The life and work of Sigmund Freud; edited and abridged by Lionel Trilling & Steven Marcus; with an introduction by Lionel Trilling. New York, Basic Books c1961.
3 vols. in one. illus. abridged.

1. Freud, Sigmund, 1856-1939. 2. Psychologists - German. 3. Psychoanalysis. I. Title.

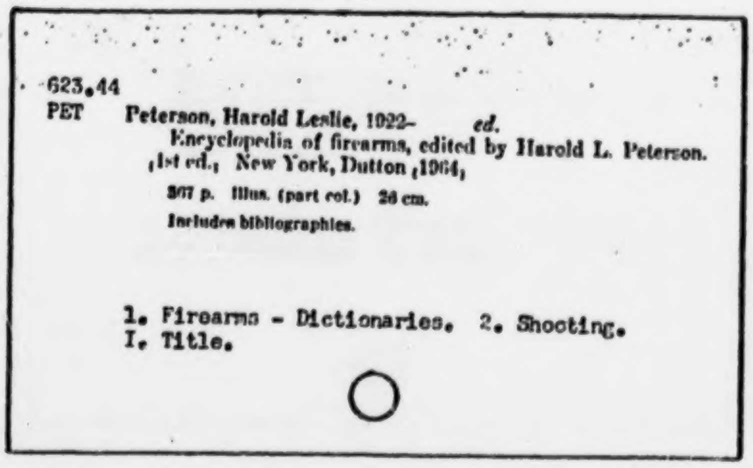
LIBRARY TWO



B
Fre
Jones, Ernest.
The life and work of Sigmund Freud.
New York, Basic Books Inc., c1961.

Psychoanalysis
t.

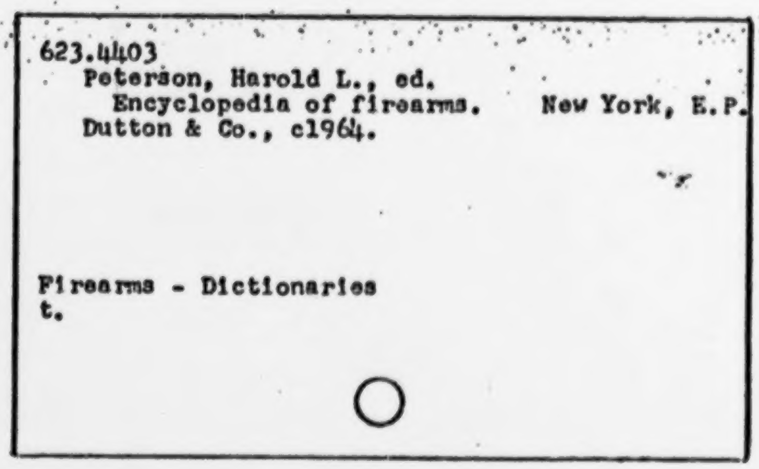
PROCESSING CENTER



623.44
PET Peterson, Harold Leslie, 1922- *ed.*
Encyclopedia of firearms, edited by Harold L. Peterson. ₍1st ed.₎ New York, Dutton ₍1964₎
367 p. illus. (part col.) 26 cm.
Includes bibliographies.

1. Firearms - Dictionaries. 2. Shooting.
I. Title.

LIBRARY TWO

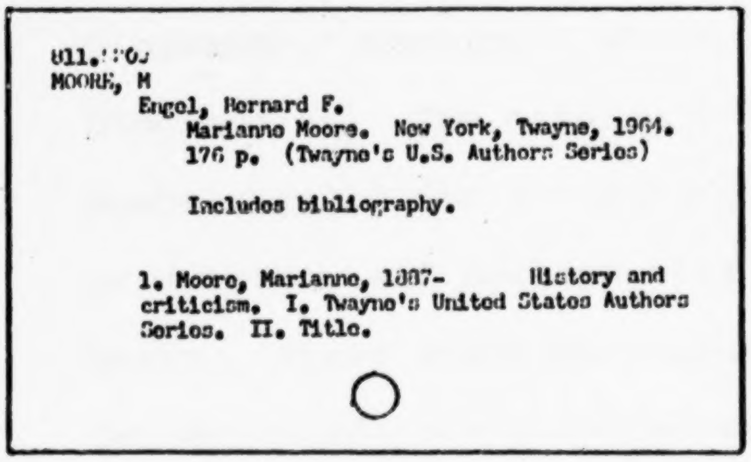


623.4403
Peterson, Harold L., ed.
Encyclopedia of firearms. New York, E.P.
Dutton & Co., c1964.

Firearms - Dictionaries
t.

FIG. 6 - COMPARISON OF CATALOGING; MAIN ENTRIES FOR THREE TITLES

PROCESSING CENTER

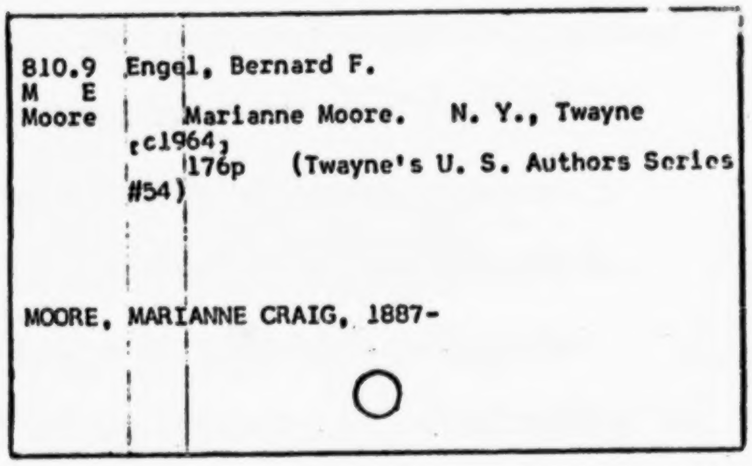


811.[illegible]
MOORE, M
Engel, Bernard F.
Marianne Moore. New York, Twayne, 1964.
176 p. (Twayne's U.S. Authors Series)

Includes bibliography.

1. Moore, Marianne, 1887- History and criticism. I. Twayne's United States Authors Series. II. Title.

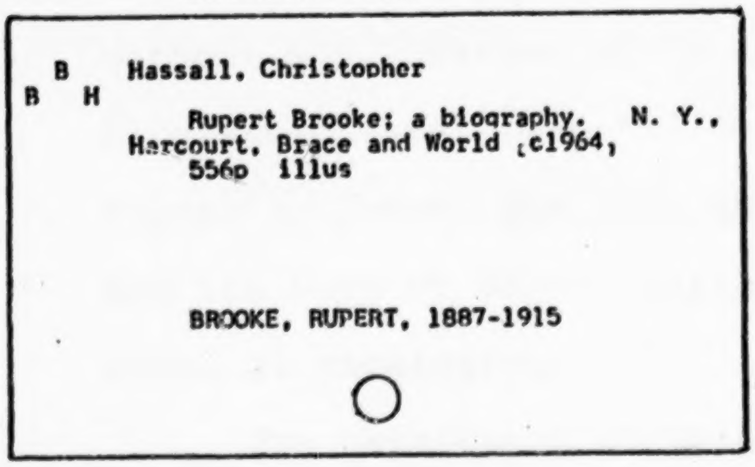
LIBRARY FOUR



810.9 Engel, Bernard F.
M E
Moore Marianne Moore. N. Y., Twayne [c1964]
176p (Twayne's U. S. Authors Series #54)

MOORE, MARIANNE CRAIG, 1887-

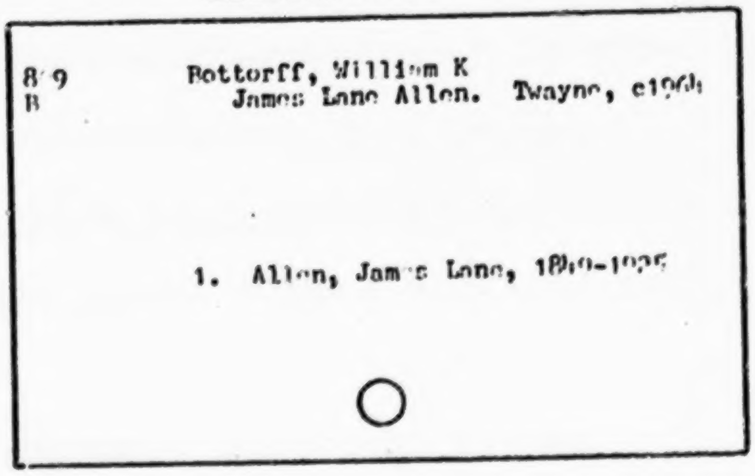
LIBRARY FOUR



B Hassall, Christopher
B H
Rupert Brooke; a biography. N. Y., Harcourt, Brace and World [c1964]
556p illus

BROOKE, RUPERT, 1887-1915

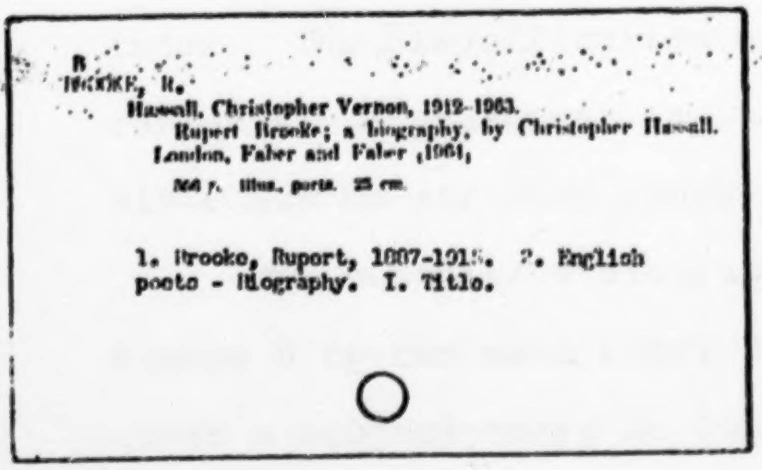
LIBRARY FIVE



8[illegible]9 Bottorff, William K
B James Lane Allen. Twayne, c1964

1. Allen, James Lane, 1849-1925

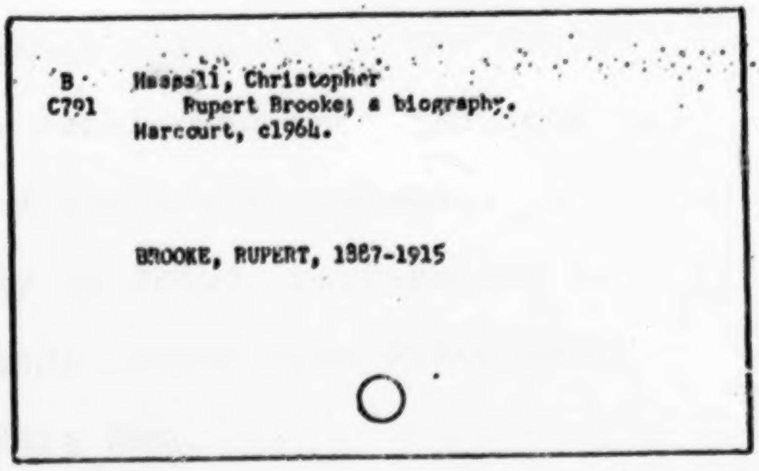
PROCESSING CENTER



B
BROOKE, R.
Hassall, Christopher Vernon, 1912-1963.
Rupert Brooke; a biography, by Christopher Hassall. London, Faber and Faber [1964]
556 p. illus., ports. 25 cm.

1. Brooke, Rupert, 1887-1915. 2. English poets - Biography. I. Title.

LIBRARY THREE



B Hassall, Christopher
C791 Rupert Brooke; a biography.
Harcourt, c1964.

BROOKE, RUPERT, 1887-1915

subject heading "Psychologists - German" to the book on Freud, which might be debated in content, as Freud is considered Austrian by many biographical dictionaries, but is wrong in form as this heading, as well as "English poets - Biography," mentioned above, is correct only for collected biographies. The catalog code approved by the Center's members calls for a subject card for the biographee's profession, and perhaps this is valuable in the small library. These examples support the contention that the Center could cut its cost by simplifying its cataloging in some respects.

The Processing Center must catalog a number of books without modification of or direct photo-copying of LC bibliographic data. The titles by Leonhardt, This Germany, Figure 3; Jones, The Life and Work of Sigmund Freud, Figure 5; and the book by Engel, Marianne Moore, Figure 6, illustrate original cataloging.

The cataloging of This Germany, Figure 3, is not dissimilar among the three libraries pictured. Library One brought out the fact that the book contained a biographical index. The classification number assigned by the Center reflects the statement in its cataloging code that the 914-919 class be strictly reserved for travel guides.

The definitive biography of Freud, represented in Figure 5 by two main entry cards, shows that Freud was not given a subject entry in Library Two.

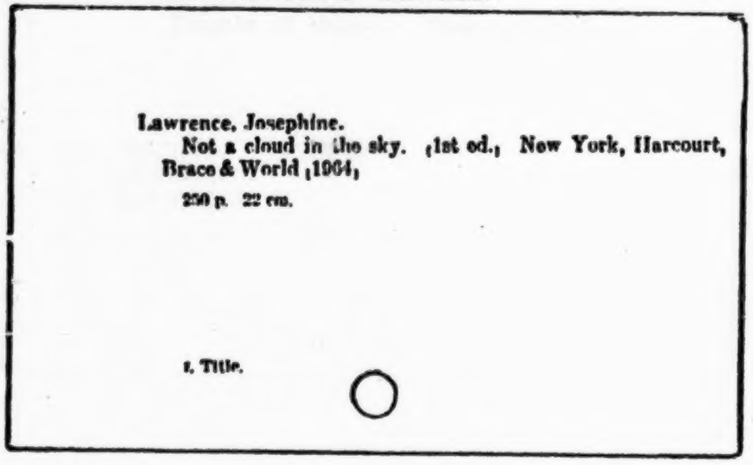
Engel's critical work on Marianne Moore, appearing in Twayne's U. S. Authors Series, is represented by two cards in Figure 6, and another book in the same series, _James Lane Allen_, is illustrated as cataloged by Library Five. Three different classifications are given for these works of criticism; the number assigned by the Center reflects the rather elaborate classification worked out for criticism. The other two classifications are not correct, and the Cutter letter "B" assigned by Library Five might be open to some question. The value of a series entry for a publisher's series is a debatable issue here, although one might argue that it would be useful in the small public library. It is to be noted that the Center makes a title for every book, as illustrated here in the biographical works.

Figures 4 and 7 illustrate the cataloging of fiction, which seems generally to be of the same depth. The line under the first letter of the title in the cataloging of Library Three is its method of indicating a title tracing. Various methods of indicating a classification or filing letter are used. Although the Center and Library Three use no mark, Library One uses a fiction stamp and the initial letter; Library Four uses an "F", and Library Five uses an initial letter in the illustration for Figure 4 but none in that for Figure 7.

Figure 8 illustrates a random group of non-fiction chosen for Libraries Two and Five as they were not well

FIG. 7 - COMPARISON OF CATALOGING; MAIN ENTRIES FOR TWO NOVELS

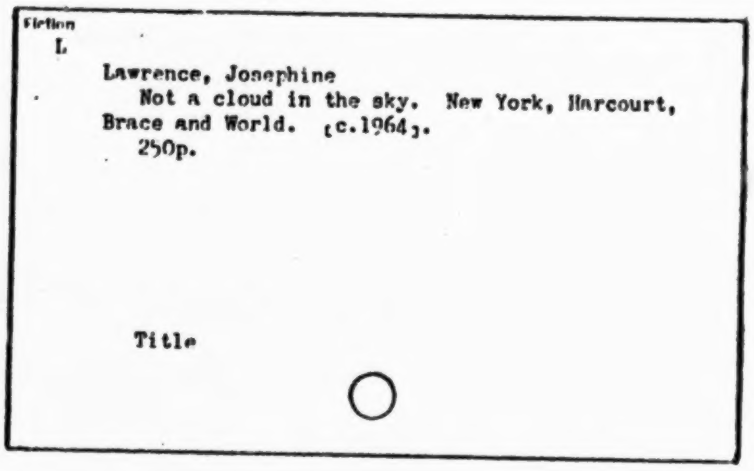
PROCESSING CENTER



Lawrence, Josephine.
Not a cloud in the sky. [1st ed.] New York, Harcourt, Brace & World [1964]
250 p. 22 cm.

I. Title.

LIBRARY ONE

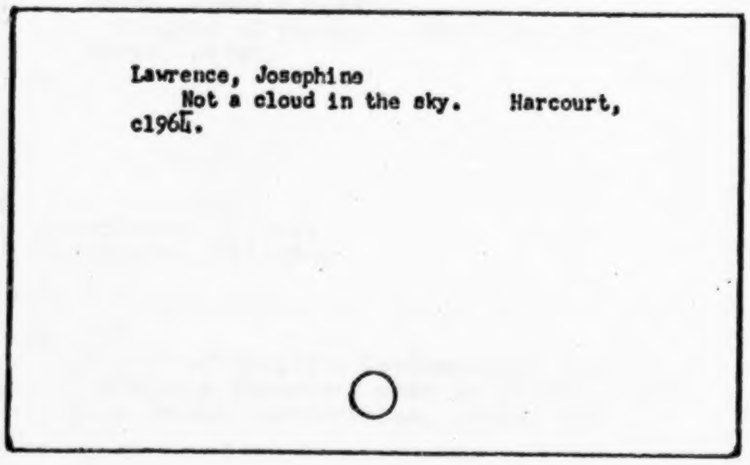


Fiction
L

Lawrence, Josephine
Not a cloud in the sky. New York, Harcourt, Brace and World. [c.1964].
250p.

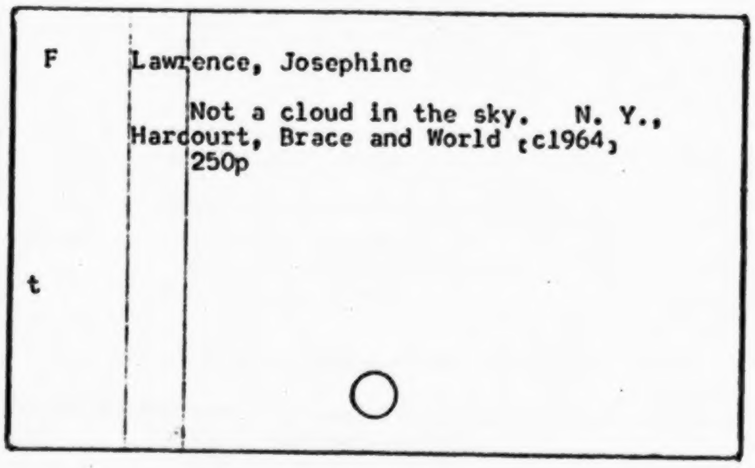
Title

LIBRARY THREE



Lawrence, Josephine
Not a cloud in the sky. Harcourt, c1964.

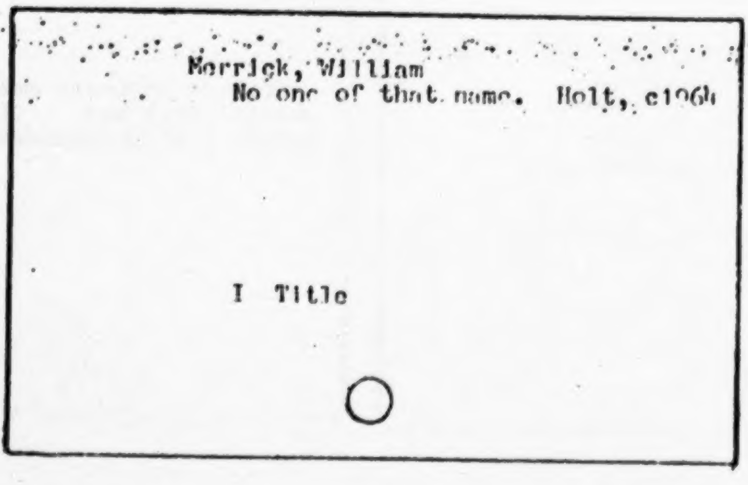
LIBRARY FOUR



F Lawrence, Josephine
Not a cloud in the sky. N. Y., Harcourt, Brace and World [c1964]
250p

t

LIBRARY FIVE



Merrick, William
No one of that name. Holt, c1964

I Title

FIG. 8 - COMPARISON OF CATALOGING;
RANDOMLY SELECTED TITLES

LIBRARY THREE

629.132 Smith, Frank Kingston
S Flights of Fancy. Random, c1960.

AIRPLANES - PILOTING
AERONAUTICS
AIR PILOTS

PROCESSING CENTER

355
WOL Wolfe, Thomas W.
Soviet strategy at the crossroads.
Cambridge, Mass., Harvard University
Press [1964]
342 p. (A Rand Corporation
Research Study)

"Notes": p. [265]-328.

1. Russia - Military Policy
I. Title.

LIBRARY TWO

629.126
Smith, Frank Kingston.
Flights of fancy. New York, Random
House, c1960.

Aeroplanes, Private
Aeroplanes, Piloting
t.

394.268
Editors of McCall's Needlework & Crafts.
McCall's Christmas make-it ideas. New
York, McCall Corporation, c1960, 1963.

Christmas
t.

R
031
Funk & Wagnalls.
Funk and Wagnalls new standard encyclopedia yearbook. 1963. New York, Standard Reference Works Publishing Co., c1964.

LIBRARY FIVE

813.4 Clemens, Samuel Langhorne
C Huckleberry Finn; text, sources,
and criticism. Edited by Kenneth S.
Lynn. Harcourt, c1961

1. American literature - History and
criticism I Title

808.81 Felleman, Hazel, ed.
F Poems that live forever.
Doubleday, c1965

1 Poetry - Collections. I LTitle

028 Adler, Mortimer Jerome
A How to read a book; the art of
Pb getting a liberal education.
Simon, c1940

1. Books and Reading
2. Reading I Title

641.5 St. Paul's Greek Orthodox Church
S The art of Greek cookery.
Doubleday, c1963

1.. Cookery, Greek I. Title

represented in the other comparisons. The differences in the subject headings for the title by Smith, Flights of Fancy, between Libraries Three and Two are interesting, and the spellings reflect the use of LC and Sears subject heading guides.

Funk and Wagnall's New Standard Encyclopedia, cataloged by Library Two in Figure 8, did not receive any added entries. The title by Wolfe, Soviet Strategy at the Crossroads, cataloged by the Center and illustrated in Figure 8, was chosen at random, but seems to represent a fairly complete kind of cataloging.

In an attempt to demonstrate the differences in the depth of cataloging by a numerical guide, a value of one was assigned each element that appears on some of the catalog cards illustrated in Figures 3, 5 and 6. The results of these quantitative comparisons are given in Appendix I. Although a very simple key to the quantification of the material on the cards was devised, it will be seen that the Processing Center scored a substantially higher score on all but one of the comparisons, where the score was equalled by Library One.

If the costs for cataloging are reviewed from Chapter VI, there seems to be a general correlation between the cost of cataloging and the amount of detail on the cards. The investigator does not claim that the level or depth of cataloging represented by the Center and Library One should be the desired goal; if the present level of cataloging is adequate for the public and staff, then it is sufficient for library purposes. But, if those non-member libraries whose cataloging is rather brief were to match the depth of cataloging and classification done by the Processing Center and by Library One, their costs would certainly be as high, if not higher. The most difficult problem would be that of finding staff time available to devote to a greater level of cataloging.

CHAPTER VIII

CONCLUSIONS

The purpose of this study was to compare the cost of book processing for libraries in a processing center with the cost of technical processing in comparable non-member libraries. The study was structured from the hypothesis that centralized processing, for the same quality of product, is less expensive than individual library processing. As the study developed, however, it was not possible to obtain strictly comparable cost figures for processing done in the Oak Park Book Processing Center and in the individual non-member libraries under consideration.

The review of the Center's work and costs resulted in a determination of the cost of processing, based on the first year of operation and using a gross method of computation, at $3.30 per volume. The budget for the second year of operation anticipates a total cost of $2.98 per volume. These costs are markedly higher than the costs established, using a more refined method, for the same operations as performed in the five non-member libraries: $1.15, $.83, $.82, $.83, and $1.23 per volume, with a mean cost of $.95 per volume. On this basis, there would seem to be little support for the hypothesis of the study. There are, however, several mitigating factors affecting the study and rejection of the hypothesis cannot be fully justified because of the divergent methods of arriving at the cost figures.

If only the charge to the member library for processing services is considered, instead of the actual cost of the Center, the differential is lessened since the charge to member libraries of $1.20 per volume made by the Center can be compared to a mean cost of $.95 per volume to the individual non-member library. Even this comparison indicates that the cost of Center processing is 25 percent higher than that done by individual libraries themselves. These figures do not, however, account for differences in the quality of cataloging, for which controls were assumed by the hypothesis. The greater depth of cataloging done at the Center may in fact be worth the additional expense and certainly accounts for, at least in part, the relatively high costs for processing there.

Within the limits described, an attempt was made to design the best study possible, but perhaps more questions have been raised than have been answered. If the study were to be repeated, certain lessons learned would be incorporated. The same hypothesis would be used, because it still seems logically appropriate, and the elements that voided its support could be guarded against in another application. Perhaps centralized processing is more expensive, but further study with the troublesome aspects that were exposed in the present investigation under firm controls is needed.

Future studies should probably include an examination of more centers, rather than an emphasis on case study, as was done here. Too, the centers chosen should not be those which attempt to do special alterations for their members; that is, a sounder basis for comparative study would be the choice of those centers which do a distinctly similar kind of cataloging as do the independent libraries in the same area or which could be considered potential members.

These, and other factors which have gone into the high costs of processing at the Center were discussed in Chapter IV. It may be useful to review and elaborate the significance of some of these aspects, explore new elements, suggest additional studies, and present some theoretical suggestions.

Timing of the Study

The first year or 18 months of a center's existence is obviously not the best time in which to attempt a cost analysis of its operation. A year of planning and visiting other centers, a month of trial operation, and a six-month period of actual operation were considered an adequate prelude to a period of study. It was assumed that the operation, after this length of time, would have evolved into a process which would approximate that necessary for a long-term operation. This assumption was not realistic, and study methods were changed accordingly. In some cases a study might be conducted after a brief period, but lack of records, leadership and proper planning precluded the attempt in this case. Although the initial period of a center's operation does not seem the best time in which to begin such a study, a specific investigation of the cost aspects of starting a center might be fruitful. Such a study could identify those areas where errors will be most costly.

Levels of Cataloging

In the hypothesis the investigator was careful to refer to the cost factor in terms of "a similar quality of cataloging." The factor of quality has been covered in Chapter VII, although the investigator chose to avoid dealing with this aspect in terms of the adjectival "quality of cataloging." Quality refers to a degree of excellence and it would only be possible in an independent study to quantify the degree of excellence or adequacy of cataloging in a given library. What is the basic standard of cataloging that should be maintained in libraries of this size and type? What are the needs of the patrons and staff? These are some questions that future studies on the impact of centralized processing in the library community might investigate.

The extent, or completeness of cataloging was the most important cause of the high cost of center service. Work in this area reflects the cost of processional labor for original cataloging and for modification of printed cards. In addition, the expansion or modification of printed cards reflects an immediate cost increase in terms of typing time by clerks and additional steps in the photo-reproduction process. In Chapter IV (p. 77) it was noted that 60 percent of the printed cards used for non-fiction were modified. In Chapter VII the illustrations of catalog cards were provided to point out the greater depth of cataloging done by the Center. This study does not attempt to assess the value of a special classification scheme, an elaborate code for descriptive cataloging, or special rules for subject headings; nor does the study attempt to assess the cost of providing these items. There is no doubt that the Center provides a greater depth of cataloging, but there is doubt concerning the practical value of this greater depth, and there is doubt of its value when costs are critical.

If the librarians in the libraries studied herein consider their own cataloging adequate for the needs of their patrons and staff, it would be difficult for an independent observer to justify condemning the character of the cataloging that is done.

Some libraries spend more time on cataloging than do others and a direct relationship generally can be seen between time spent, labor cost, and the fullness of the cataloging and the amount of bibliographical detail.

Omission of Overhead Charges for Non-member Libraries

The per-item charge established at Oak Park was estimated on more than just the cost of labor and supplies. Items such as rent, heat, light, insurance, subscriptions, employee fringe benefits and administrative overhead were represented in the charge of $1.20 per volume cataloged and processed. The study of the non-member libraries made by the investigator did not include these factors but was simply based on direct labor and supply costs.

An exploration of only one of these items, such as administrative overhead, will demonstrate the importance of these elements in the cost phases. In an operation of this size the position of director pays at least $10,000 per year, with appropriate secretarial help. Neither of these positions have any direct bearing on production. The person in this position must plan the budget, obtain personnel, maintain relations with member libraries and book jobbers, plan and supervise the most effective flow of materials, and be conversant with new types of machines for accounting, card reproduction, typing and pasting. This person, however, will normally do no actual cataloging or any other specific task in the routine process. If the plan is to process 100,000 volumes per year and an administrator is hired at $10,000 per year, a commitment of 10¢ per volume has immediately been created in one salary only. This would be in addition to the time spent by the library director, which was a generous amount in this case, in general supervision and public relations.

When all the equivalent intangibles mentioned are added to those costs established for the non-member library, in addition to the consideration of the differences in detail on the catalog cards, there will be some reduction in the cost differences. A worthwhile study that could be conducted in one or two libraries would be an attempt to place a dollar value on the overhead charges which can be allocated to each library operation.

Cost per Volume from the Center

The administration of the Center has always intended to reduce costs as soon as the operation justified this procedure. A comparison of costs with those charged by other centers shows that the Oak Park per volume charge was on the higher end of the scale, while the true cost was even higher.

Bundy, in her 1962 study, listed some of the costs as follows:

Center	Cost	Basis for Estimate
Traverse City Public Library, Michigan	$.25	Many libraries use simplifed cataloging
New Mexico State Library Centralized Processing Project	.34	Includes labor and materials only (do not paste or mark books), employees' fringe benefits not included

Southwest Missouri Library Service	$.46	Total spent divided by total volume processed (do not order or supply jackets)
Weld County Library, Colorado	.55	Cost has varied from $.50 to $.75. Includes only materials and clerical help
Kentucky Library Extension Division	.65	Includes plastic jackets and all other materials
Library Services Center of Eastern Ohio	.673	Includes plastic jackets - figure compiled by auditor
West Virginia Library Commission	.70	
North Carolina State Library Processing Center	.87	Sum of salaries, supplies and postage divided by number of books processed (includes jackets)
Emeline Fairbanks Memorial Library, Indiana	1.00	Compromise with existing studies and estimate of our cost
Northwest Montana Federation	about 1.00	
Carnegie Public Library, Miles City, Montana	1.00	
Ohio State Library State-wide Center	1.04	Varies - $1.04 is cost of book when received from publisher and processed with jacket
Alabama Public Library Service	1.11	1956-58 figure including salaries, rent, supplies, furniture and equipment; average now considerably under, we believe

California State Library Processing Center	$1.24	Dividing the total expense by the total volumes processed (includes plastic covers)
Idaho State Library	1.25	Time-cost-capital equipment (includes plastic jackets)
Southern Tier Library System, New York	1.25	Supplies, time of personnel, depreciation of equipment, no charge for housing, heat, light
Monterey County Library, California	1.50	Everything except supplies (includes plastic book jackets)
Nevada State Library	about 2.00[1]	

In correspondence with the Crawfordsville, Indiana, Public Library in July of 1965, the investigator found its charge to be $.90 for first copies and $.80 per volume for additional copies. In conversation, in October, 1965, the director of the Suffolk County (New York) Library System stated that their cost of processing volumes for the libraries participating in that system is $.71.

Correspondence with Evelyn Day Mullen, Library Extension Specialist at the Library Services Branch of the U. S. Office of Education, elicited the following information on additional processing systems.

The North Carolina Processing Center of the North Carolina State Library in Raleigh increased its charge from

---

[1] Bundy, _op_. _cit_., p. 274.

$.75 to $1.00 per volume on July 1, 1965. This increase came because of a 10 percent increase in all state salaries. The Center reported that the salary and wage item accounted for $.73 of the charge per volume at the new scale.

The Eastern Shore Processing Center at the Wisomico County Library, Salisbury, Maryland, contracts with the Delaware Library Commission at Dover to do processing for the small public libraries of that state. The charge remains at $.75 per volume, but Delaware paid an establishment charge of $4,000.

The Albertson Public Library in Orlando, Florida, figures a charge of $.75 per volume.

The relatively high per-volume cost assessed by the Oak Park Center can be explained. Most, if not all of the other centers had funds from the Library Services Act to assist them in establishing the operation and in the initial purchase of equipment. The researcher has quoted several people to this effect in the introduction. The Oak Park Center tried to calculate the fiscal economics of the first year of operation. Consideration of new equipment, salaries, and all the other factors was made and the initial charges were based on the anticipated volume. On paper this appeared adequate. But no one could foresee the difficulties which arose and which were discussed in Chapter IV. Although Oak Park did receive direct grants from Federal funds, it was only after it had fallen behind in current operations and needed the money to pay its creditors. They could not process books fast enough to obtain sufficient funds from member libraries to keep current on book payments and operating expenses.

The Local Labor Supply

Another operational factor which is reflected is the difference between the salaries paid by Oak Park and by the individual libraries. With a national professional salary beginning at an average of $6,400 in 1964, the charges of a new service must reflect the current employment situation.

As was shown in Chapter VI in the discussion dealing with salaries, no professional librarian in the non-member libraries in the study earned more than the beginning professional salary during the period of the study, although some of them had many years of experience. The investigator can only surmise that when these libraries have personnel changes they will be unable to utilize clerical assistance in their cataloging operation, as does Library Two. The production of Wilson cards is rather stable, and if these libraries should increase their book acquisitions a higher processing cost can be anticipated.

Type of Original Cataloging Done

Throughout the study the term "original cataloging" has been used to describe any cataloging for which Library of

Congress or Wilson cards were not used. It must be pointed out that, for the vast majority of the books cataloged in this fashion, the cataloging process involves little more than copying, rearranging and checking the information provided in general trade sources, such as Publisher's Weekly and American Book Publishing Record. It is doubtful that many of these books take a great deal of time, as the Library of Congress has furnished all the information required; the cataloging process becomes a matter of how much of the data should be used. The observer noted that there was little tendency to check author entries, descriptive material, or imprint and collation. Any checking that was done was on the suitability of the subject headings and of the classification number suggested by other sources. The Center also uses many of these same sources, including Library of Congress proof slips, for its cataloging. However, the use of these sources in the Center is not simply a matter of modification; the cataloging completed there must meet the requirements and needs of the member libraries as set forth in an extensive cataloging and processing code established by majority vote of the Center membership. Thus each book must be viewed in light of the terms set forth in the code. Some books may not be affected by these criteria, but in many cases it is more than a matter of copying or rearranging material from other sources.

Costs Compared with Other Studies

Some comment may be appropriate on the relatively low inexpensive figures obtained herein and set forth as the cost of cataloging and processing a book in a library. Studies available in the literature have obtained higher figures for acquiring a title, and some comment may be in order.

The factors tending to make the figures in this study so much lower are four: an analysis of selected operations, lower salary rates, simplified cataloging, and omission of indirect costs.

If one were to analyze the total cost involved in acquiring a new title for a library, a great many more steps would have to be included than were dealt with in this study which was concerned only with selected operations. Book selection, the order process, filing of catalog cards, prorated maintenance of the card catalog, are some of the major processes not recorded. As mentioned before, salary rates tended to run rather low--a higher salary in conjunction with each of the omitted processes would soon make a substantial increase in unit cost.

It has been noted that the study was originally designed to measure only the cost of cataloging in-print, current American trade books. The research design was successful in these terms, and the cataloging observed was largely a matter of adapting information in trade sources to local conditions or using commercially available cards. These libraries added 3,000 to 6,300 volumes per year, a small percentage of the titles published annually in the United States. In a library which acquired a greater variety of titles, books published abroad, or other items for which bibliographical information is not readily available in trade sources, the unit cost undoubtedly would increase. Too, all the cataloging observed is rather simple in nature. Few catalogers were concerned about the proper form of the name of the author (corporate or individual); if it could not be readily found, the name as given on the title page was used--the feeling being that it was better to get the book before the public than to wait for exact form of entry. Few cases of analytic-making were noted, and the cataloging depth tended, in general, to be slight.

Finally, the cost assigned consists only of direct labor charges. No attempt was made to pro-rate overhead, machine depreciation, insurance, fringe benefits or other elements. Supply costs were computed at a flat ten cents per book, the largest portion of this being spent for plastic jackets, about seven and one-half cents at the volume purchased by these libraries. The remainder was spent for printed pockets, book cards and other supplies, again computed at appropriate volume discount rates.

Processing for School Libraries

The integration of various types of materials into the work flow of a center established to process a different, specific level or type of material is a question that begs for further study. Processing for schools by a center established to handle public library materials seems, in theory, to be a workable scheme. School librarians need this type of assistance to release them for public service, and many large city school systems have processing centers to order and catalog all kinds of library and audio-visual materials. But should a public library center attempt to incorporate the specific cataloging and processing needs of the school library into its own process? Cataloging data are readily available for school materials, and if the amalgamation of school library materials had the effect of establishing a sub-processing center, could this result interfere with the work for public libraries?

The Oak Park Center ran into difficulty because it attempted to process basic collections of 3,000 volumes for two new schools by a deadline date. It became necessary to devote intensive staff time to these materials in trying to meet these deadlines. This diversion of staff time from materials for the member libraries had obvious financial and public relations consequences.

Some specific difficulties encountered with school material at Oak Park were in the following areas:

A. Classification. School librarians were usually happier with a simpler classification number; they required that no "J" be used, yet requested that a variety of special symbols be added to indicate other shelving patterns.

B. Cataloging. The elaborate catalog code established by the Center was too detailed.

C. Subject Headings. Simplified forms required changes from those used in public libraries.

D. Processing. Book librarians wanted plastic covers left off some books for displays, not used on dust wrappers for books of a certain series or with picture covers, and left off pre-bound books as they were ill-fitting.

If special requirements such as these encumber the work flow, it may lead to delays and errors, especially when the center is new or new staff must be trained. Most of the complaints recorded at Oak Park were not from the school people because their requirements were not met, but rather from the public librarians, who received books treated as if for a school library.

Centralized Cataloging Vs. Centralized Processing

The advantages and savings in centralized processing (if indeed there are savings) would seem to occur in the elimination of duplication in cataloging and in the application of modern machine methods to the reproduction of catalog cards. It is questionable whether substantial savings are gained in centralized ordering or centralized physical processing.

The only apparent advantage of centralized ordering would be in an increased discount to member libraries because of volume orders. It is difficult to envisage additional savings because of easier order routines, fewer outstanding order files, or less checking of invoices. On the other hand, some restrictions are usually imposed by a center, such as deadlines for orders, the form which orders must take, etc. It is doubtful that the savings received by way of a larger discount are substantial. This could be tested by a study under the following statement:

> The increased discount in the purchase price of books received by a library when it joins a processing center is not substantial, because publishers and book jobbers are already granting, within a few percentage points, the maximum they can allow.

Should this be the case, an increase of three or four percent will not offset the costs of double ordering, billing and shipping required when a local library orders books through a processing center.

Centralized physical processing has no proven advantage over that done in the local library. The pasting machine is the only form of hardware that has been utilized, and most libraries, even the smallest, can afford this form of automation. In fact, another study could be based on the following statement:

> Physical preparation of library materials is significantly cheaper when done at the local library than when done centrally, because cheaper labor is available, volunteer help can do this work, and the work can be completed when other tasks are not available.

If a given task should be done by the lowest-paid person capable of doing it, then it would seem that there would be more opportunity for flexible assignment in the local library. Even a school child can paste book pockets and be trained to install plastic jackets.

In a centralized cataloging system the participating library would submit its orders directly to the publisher or jobber, and the books would be shipped and billed directly to the library. Thus the intermediate steps of shipping, storage and rebilling by the center would be eliminated. At the same time the books are ordered, a copy of the order would be sent to the cataloging center. The center, located in a large library that would presumably have purchased most of these books for its own collection, would supply a set of printed catalog cards, a printed book card, pocket and spine label to the individual library. The Library Journal book kits could be used where available. If the book were not available to the center staff, it could usually be cataloged without seeing it, using common sources so readily available. In unusual cases, the member library might have to supply a bibliographical description of the volume.

When the books are received from the jobber and the card sets are obtained from the center, the processing could be completed. This is little different than the procedure of a library using Wilson or LC cards. The individual library would have the advantages of (1) having its own cataloging needs reflected in the code for that particular center, (2) faster service, and (3) receipt of a prepared book pocket and card. In addition, the book is available to a local patron, and not stored in a processing center and inaccessible for emergency use.

Changes in the cataloging or classification as received from the center, although not to be encouraged, would be much easier on the disassembled materials. Before centralized processing is widely accepted, the other studies suggested should be undertaken to determine the best possible form of cooperation in technical processing.

A National System of Processing Centers

By carrying these developments to their logical end, it seems feasible to recommend a national network of centralized processing, or cataloging, centers. Such a network would blend with the plan of the Library of Congress to increase its output of cataloging information. The network might consist of centers for school, public, and college library materials. Large institutions, such as universities or public libraries with centralized technical service departments already serving a multiplicity of outlets, would be considered entities.

Smaller institutions could be served on a regional basis. By teletype or other means of rapid communication directly with the Library of Congress, the regional center could receive catalog data on cards or other format in a matter of days. This process would have the effect of centralizing cataloging for the nation. These centers would disperse Library of Congress catalog data to their members, adapting such data to the requirements of the members when necessary, and doing original cataloging when necessary. The incorporation of data processing devices and the production of book catalogs within these systems would be a natural development.

Such a scheme would standardize cataloging for the three levels. The impact on the shortage of professional catalogers is obvious. Yet by holding centralization to this extent, enough modification in the original cataloging product can be made to serve the requirements of each particular type of institution.

A uniform quality level of cataloging would become standard, thus easing the patron's use of the catalog from the moment he enters school on into his adult life. Such a consolidated system of centers would reduce the need to support the multi-divergent centers that are springing up. Federal funds could be spent on fewer centers where the best administrative and technical staffs could be assembled. In this fashion, many professional librarians would be free to serve the public. Where necessary, catalogers could spend some of the released time doing indexing in depth, providing more subject approaches to the inquiring patron.

Summary

The analysis of a processing center's work presented here demonstrates the difficulties that can arise during the first year of operation and reviews the reactions of its members to the service during this time. The cost figures obtained for the services of the center, which included all the intangibles, were higher than expected, and admittedly higher than they need be, due to the various causes discussed. Costs are being reduced and it is anticipated that the center will be able to continue operation, but will need continued assistance from Library Services and Construction Act funds for the foreseeable future.

By the time study of various processes in five independent public libraries, this study has added to the ever increasing body of data bearing on the development of standard times for activities in technical processing. More study is needed, especially in the application of cost accounting methods to library organization. Particularly vital in this area is the analysis of overhead costs. The proportion of administrative time that can be allocated to each function is very difficult to determine as it is never stable, and it will require a great deal of study and thought to obtain a fair picture of any average time devoted to this or that activity. Tangibles such as rent, space, utilities, and insurance can be divided and credited to various activities with only a minimum of trouble. Staff time, however, is more difficult to allocate, whether it is that of an administrator, a staff member who "floats" between departments or does processing work while manning a public desk, or a maintenance employee.

Although centralized processing did not effect savings in this case, no member of the center would advocate a return to each library processing its own books. Other published reports indicate wide variance in the per-volume cost of centralized service. There may be some question as to the validity of a number of these reports, since many of the cost figures are very low indeed. But if the cost of centralized processing can be kept to a reasonable figure, its definite advantages justify the program, as there are few projects on which Federal and local funds could be better spent to aid the library and society.

The investigator hopes that this study will be of some real assistance to those concerned with recommending changes or establishing procedures in technical processes. As library systems, with centralized processing as a feature, spread over the land, there should be little hesitation on the part of local librarians to accept this innovation. Centralized processing appears to be the only satisfactory way of obtaining a consistent level of cataloging at a reasonable cost while freeing our scarce professional colleagues for public services that are so desperately required in an ever-increasing scale. The critical factor is that of reasonable cost; care must be taken to ensure that money is not wasted by hasty actions.

BIBLIOGRAPHY

The sources used in the preparation of the study have been divided into five sections. The first section lists the works of a general nature. The remaining sub-divisions parallel those given in Chapter II concerning the review of related research: Library Cost Studies to 1950, Cost Accounting and Cost Studies since 1950, Time and Motion Studies, and Centralized Processing.

General Works

American Library Association. Public Libraries Division. Public Library Service: A Guide to Evaluation with Minimum Standards. Chicago: ALA, 1956.

American Library Directory. 24th ed. New York: R. R. Bowker Co., 1964.

Asheim, Lester (ed.). Persistent Issues in American Librarianship. Chicago: Graduate Library School, University of Chicago, 1961.

The Bowker Annual of Library and Book Trade Information. New York: R. R. Bowker Co., 1965.

Bowler, Roberta (ed.). Local Public Library Administration. Chicago: The International City Managers' Association, 1964.

Daniel, Hawthorne. Public Libraries for Everyone. Garden City, New York: Doubleday, 1961.

Dennis, Donald D. Simplifying Work in Small Public Libraries. Philadelphia: Drexel Institute of Technology, 1965.

Gulick, Luther H. and Urwick, Lyndall. Papers on the Science of Administration. New York: Institute of Public Administration, Columbia University, 1937.

Melcher, Daniel. "Central Processing on a Do-It-Yourself Basis," Library Journal, XC (Jan. 15, 1965), 316.

Metcalf, Keyes D. "General Problems," Library Trends, VI (Jan., 1958), 260-71.

Moshier, Louise Marion. State Plans Under the Library Services Act. Washington, D. C.: U. S. Office of Education, 1958.

Munn, Ralph. "Planning for Cooperation," ALA Bulletin, LVIII (June, 1964), 496-99.

Rohlf, Robert H. A Plan for Public Library Development in Illinois. Aurora, Illinois: Illinois Library Association, Library Development Committee, 1963.

Sandoe, Mildred W. Lorain County Library Survey. Columbus, Ohio: Ohio Library Foundation, 1963.

Schultheiss, Louis A., et al. Advanced Data Processing in the University Library. New York: The Scarecrow Press, 1962.

Shaw, Ralph R. (ed.) The State of the Library Art. Vol. 1, part 1, "Cataloging and Classification," by Maurice F. Tauber. Vol. 1, part 2, "Subject Headings," by Carlyle J. Frarey. Rutgers: The State University, New Brunswick, New Jersey, 1960.

Strout, Donald E. The Impact of the Library Services Act: Progress and Potential. (Allerton Park Institute, no. 8) Urbana, Illinois: Graduate School of Library Science, University of Illinois, 1962.

Strout, Donald E. and Strout, Ruth B. "Sixty-one Forty-five in Nineteen Sixty-four," Library Journal, XC (June 15, 1965), 2741-49.

Tauber, Maurice, et al. Technical Services in Libraries. New York: Columbia University Press, 1953.

Tauber, Maurice. "Technical Services in 1963," Library Resources and Technical Services, VIII (Spring, 1964), 101-11.

Wheeler, Joseph L. and Goldhor, Herbert. Practical Administration of Public Libraries. New York: Harper and Row, 1962.

Library Cost Studies to 1950

"The A.L.A. Cataloging Test at Yale and Columbia," Library Journal, XLII (Feb., 1917), 110-12.

Baldwin, Emma V. Cost Accounting in Public Libraries. Montclair, New Jersey: Committee for the Study of Cost Accounting in Public Libraries, 1939.

Baldwin, Emma V. and Marcus, William E. Library Costs and Budgets. New York: R. R. Bowker Co., 1941.

Cresap, McCormick, and Paget. The New York Public Library: Survey of Preparation Procedures, Reference Department. New York: The Authors, 1951.

Hand, Elinor. "A Cost Survey in a University Library," Library Journal, LV (October 1, 1930), 763-66.

Hanson, James C. M. "The Cataloging Test in the University of Chicago Library," Library Journal, XL (June, 1915), 399-400.

Illinois. University. Library. Order and Exchange Department. Cost Analysis, September 1 - December 31, 1930. Urbana, Ill.: University of Illinois Library, 1931.

Josephson, Askel G. S. "The Cataloging Test; Results and Outlook," Library Journal, XLI (Sept., 1916), 654-57.

Josephson, Askel G. S. "The Committee on Cost and Method of Cataloging," Library Journal, XXXIX (Aug., 1914), 598-99.

Leupp, Harold L. "The Cost Survey of the University of California Library," College and Reference Library Yearbook, Chicago: ALA, 1931, 85-93.

Library Journal, I (1876-77), 219; X (1885), 214; LI (1926), 140.

These are brief articles giving information concerning Cutter's, Whitney's and Windsor's cost estimates.

Los Angeles. Bureau of Budget and Efficiency. Organization, Administration, and Management of the Los Angeles Public Library. Los Angeles: The Bureau, 1948-1951.

McDiarmid, Errett W., Jr. The Library Survey. Chicago: ALA, 1940.

Miller, Robert A. "Cost Accounting for Libraries: Acquisition and Cataloging," Library Quarterly, VII (October, 1937), 511-36.

Miller, Robert A. "Costs of Technical Operations" in Randall, William M. Acquisition and Cataloging of Books. Chicago: University of Chicago Press, 1940.

Pierce, Watson O'D. Work Measurement in Public Libraries: A Report to the Director of the Public Library Inquiry. New York: Social Science Research Council, 1949.

Rider, Fremont. "Library Cost Accounting," Library Quarterly, VI (October, 1936), 331-81.

Cost Accounting and Cost Studies since 1950

Allen, Kenneth S. "Management Methods in Libraries: A Symposium," Bulletin of the Medical Library Association, XLIX (October, 1961), 514-40.

American Library Association. Library Technology Project. Catalog Card Reproduction; Report on a Study Conducted by George Fry and Associates, Inc. Chicago: ALA, 1965.

Berkowitz, Albert M. "Study of the Costs of Cataloging Books with Library of Congress Catalog Cards and Original Cataloging Methods,"(Master's thesis, Catholic University of America, 1961.)

Brutcher, Constance. "Cost Accounting for the Library," Library Resources and Technical Services, VIII (Fall, 1964), 413-31.

Carnovsky, Leon. "Measurements in Library Science." in Joeckel, C. B., ed. Current Issues in Library Administration, Chicago: University of Chicago, 1939.

Dubester, Henry J. "Studies Relating to Catalog Problems," Library Quarterly, XXXIV (January, 1964), 97-105.

Farley, Alfred E. "Combined Procedures for Technical Processes," Library Resources and Technical Services, VIII (Summer, 1964), 257-65.

Fasana, Paul J. "Automating Cataloging Functions in Conventional Libraries," Library Resources and Technical Services, VII (Fall, 1963), 350-65.

Fatka, Veda. "Cost of Cataloging Versus Printed Cards in the School Library," Wilson Library Bulletin, XXXIII (November, 1958), 239.

Franklin, Robert D. "Book Acquisition Costs," Library Journal, XC (April 1, 1965), 1612-13.

Fry (George) and Associates, Inc. Catalog Card Reproduction. Chicago: Library Technology Project, ALA, 1965.

Grubb, Charles. "How to Reduce Cataloging Costs," American Documentation, V (August, 1954), 146-54.

Hellum, Bertha D. and Biggins, Alfred J. Cost-saving in Book Cataloging. in Trinkner, C. L., ed. Better Libraries Make Better Schools. Hamden, Connecticut: Shoe String Press, 1962.

Heinritz, Frederick. "Book Versus Card Catalog Costs," Library Resources and Technical Services, VII (Summer, 1963), 229-36.

Knapp, Patricia B. "A Cost Study in the Preparation Department of a Small College Library," Library Quarterly, XIII (October, 1943), 335-37.

Langenbeck, Earl H. "A Plan to Reduce Costs of Technical Library Operations in the Department of Defense," American Documentation, XIII (July, 1962), 295-300.

Lowrey, Anna M. "California Cataloging Study," Library Journal, LXXXIV (February 15, 1959), 619-21.

McCurdy, May L. "Organization of the Card System," Library Journal, LXXII (November 1, 1957), 2754-57.

McDougall, Betty. Reduction of Cataloging Costs. in Raymond, Irwin D. Seminar on Technical Services. Melbourne, Australia: Bailieu Library, University of Melbourne, 1962.

MacLean, Virginia J. "Eliminate the Automate, Get a Better Cost Rate," Ohio Library Association Bulletin, XXXIII (October, 1963), 5-6.

MacQuarrie, Catherine. "Cost Survey: Cost of Ordering, Cataloging, and Preparation in Southern California Libraries," Library Resources and Technical Services, X (Fall, 1962), 337-50.

Moon, Eric E. "Neglected Sources," (editorial), Library Journal, LXXXVI (July, 1961), 2434.

Morsch, Lucile M. "Scientific Management in Cataloging," Library Trends, II (January, 1954), 472-85.

Nitecki, Andre. "Cost Accounting Forms," Michigan Librarian, XXIX (December, 1963), 19-21.

Olson, Grace A. "Cataloging Costs: Report of a Study Made in Stockton Public and San Joaquin County Libraries," News Notes of California Libraries, L (July, 1955), 470-73.

Orne, Jerrold. "We Have Cut Our Cataloging Costs!" Library Journal, LXXIII (October 15, 1948), 1475-78.

Piercy, Esther J. "Cost, Time, and Terms," (editorial) Library Resources and Technical Services, VI (Fall, 1962), 336.

Pilton, James and Cooper, Susan. "Cost of Purchasing, Cataloging and Processing a Book at the Edmonton Public Library, a Preliminary Study," Edmonton Public Library News Notes, VI (March, 1961), 22-26.

Pintress, V. G. Elementary Costing for Libraries. Gravesend, England: Philip, Lodgewood, 1942.

Reichmann, Felix. "Costs of Cataloging," Library Trends, II (October, 1953), 307.

Shachtman, Bela E. "Cataloging Statistics and Standards," Journal of Cataloging and Classification, XII (July, 1956), 157-66.

Sievers, Patricia T., and Fasana, Paul J. Automated Routines in Technical Services. Hanscom Field, Massachusetts: Air Force Cambridge Research Laboratories, 1963.

Storm, Herman R. "Further Costs of Card Reproduction," *Library Resources and Technical Services*, VII (Fall, 1963), 327.

Taylor, L. "Cost Research on a Library Service," *Aslib Proceedings*, XIII (Sept., 1961), 238-48.

Warren, Joan P. and Barnard, Walter M. "Cataloging Statistics: Report on an Experiment," *Library Resources and Technical Services*, I (Spring, 1957), 67-81.

Werner, Edward C. *Cutting Cataloging Costs in the Small Library*. *in* Trinkner, C. L., ed. *Better Libraries Make Better Schools*. Hamden, Connecticut: Shoe String Press, 1962.

Wilson, Lucille B. "Short-cuts and Economies for Small Public Libraries," *Wilson Library Bulletin*, XXVI (November, 1951), 262-64.

Wright, Wyllis E. "Cataloging in a Period of Economic Stringency," *Journal of Cataloging and Classification*, VIII (December, 1952), 173-74.

Wynar, Donald. "Cost Analysis in a Technical Services Division," *Library Resources and Technical Services*, VII (Fall, 1963), 312.

Young, Heartsill H. *Survey of the Houston Public Library, Part III: Technical Processes*. Austin, Texas: University of Texas Graduate School of Library Science, 1952.

Time and Motion Studies

Blasingame, Ralph V. "Work Simplification in Libraries," *News Notes of California Libraries*, XLVIII (April, 1953), 328-33.

Boyd, Bradford and Kool, Robert L. "Operational Efficiency: The Basic Principles of Planning and Organizing Work and Traffic Flow," *in* Wisconsin. University. Government Bureau. University Extension Division, 5th Institute, *Public Library Building*, 1953, p. 1-15.

Cahill, B. F. "How to Use a Work-count," *Supervisory Management*, VIII (August, 1963), 25-28.

Carrabino, Joseph D. "Methods Improvement Thru Work Simplification," Law Library Journal, XLVI (November, 1953), 412-19.

Carroll, Phil. "We Need Work Measures," in Sharp, H. S., ed. Readings in Special Librarianship. New York: Scarecrow Press, 1963, p. 229-37.

Dennis, Donald D. Simplifying Work in Small Public Libraries. Philadelphia: Drexel Institute of Technology, 1965.

Elftmann, Robert A. "Library Cost Studies; Industrial Engineering vs. Cost Accounting Techniques." (Master's thesis, University of Minnesota, 1953.)

Frarey, Carlyle J. The Processing Services of the Dallas Public Library. Dallas: The Public Library, 1959.

Hardkopf, Jewel C. "An Application of Methods and Motion Techniques in Preparing Books in the New York Public Library." (unpublished Master's thesis, Columbia University School of Library Service, 1949.)

Hicks, Warren B. and Lowrey, Anne M. "Preparation and Cataloging Time in School Libraries," School Library Association of California Bulletin, XXX (May, 1959), 7-10.

Langenbeck, Earl H. "A Plan to Reduce Costs of Technical Library Operations in the Department of Defense," American Documentation, XIII (May, 1962), 295-300.

Logsdon, Richard H. "Time and Motion Studies in Libraries." Library Trends, II (January, 1954), 401-09.

McAnally, Arthur M. "Budgets by Formula," Library Quarterly, XXXIII (April, 1963), 159-71.

MacQuarrie, Catherine. "Cost Survey: Cost of Ordering, Cataloging, and Preparations in Southern California Libraries," Library Resources and Technical Services, VI (Fall, 1962), 337-50.

Manual for Time and Motion Studies. Denver, Colorado: University Libraries, Division of Technical Services, 1960.

Moore, Milton C. "Flexowriter versus Multilith: A Time and Cost Study," California Librarian, XXV (October, 1964), 257-59.

Mundel, M. E. Motion and Time Study: Principles and Practice. 3rd ed. New York: Prentice-Hall, 1960.

Perry, Stuart. "O & M in the Library," New Zealand Libraries, XXIV (July, 1961), 129-32.

Pickett, Asa S. "San Francisco State College Library Technical Services Time Study," Library Resources and Technical Services, IV (Winter, 1960), 45-46.

Pilton, James and Cooper, Susan. "Cost of Purchasing, Cataloging, and Processing a Book at the Edmonton Public Library," Edmonton Public Library News Notes, VI (March, 1961), 22-26.

Poage, Scott T. "Work Sampling in Library Administration," Library Quarterly, XXX (July, 1960), 213-18.

Pratt, Lorraine. "Analysis of Library Systems; a Bibliography," Special Libraries, LV (December, 1964), 678-95.

Simpson, Elaine C. "I am a Convert to Work Simplification," Library Journal, LXXX (November 1, 1955), 2436-38.

Snow, Jean B. "A Comparison of Time Spent on Technical Processes of Two Separate Library Units." (Master's thesis, University of Washington, 1952).

Taylor, L. "Cost Research on a Library Service," Aslib Proceedings, XIII (September, 1961), 238-48.

Uridge, Margaret D. "Use of Work Simplification in Library Procedures," School Library Association of California Bulletin, XXV (November, 1953), 18-25.

Van Pelt, Jan D. "Time and Motion Study in a Catalog Room," Australian Library Journal, V (April, 1956), 55-63.

Voos, Henry. Standard Times for Certain Clerical Activities in Technical Processing. Dover, New Jersey: Technical Information Branch, Picatinny Arsenal, 1964.

Weed, Katherine K. "Tool for Management Evaluation of Library Services," Special Libraries, XLVIII (October, 1957), 378-82.

Wheeler, Joseph L. "Selected References on Work Simplification," News Notes of California Libraries, XLVIII (April, 1953), 334-36.

Woodruff, Elaine L. "Work Measurement Applied to Libraries," Special Libraries, XLVIII (April, 1957), 139-44.

Wynar, Donald. "Cost Analysis in a Technical Services Division," Library Resources and Technical Services, VII (Fall, 1963), 312-26.

Centralized Processing

Aceto, Vincent J. "Panacea or Pandora's Box? A Look at Central Processing in New York State," Library Journal, LXXXIX (January 15, 1964), 322-24.

Adcock, Elizabeth A. "A Comparison of the Operations of Various Processing Centers," Library Resources and Technical Services, VIII (Winter, 1964), 63-70.

Bendix, Dorothy. "Regional Processing for Public Libraries: A Survey," Library Resources and Technical Services, II (Summer, 1958), 171-75.

Bishop, Mary. "Wanted: Books to Process," Library Occurrent, XXI (March, 1964), 103-04.

Bowron, Albert W. "Centralized Processing for Ontario Libraries," Ontario Library Review, XLV (May, 1961), 100-03.

Bundy, Mary Lee. "Behind Central Processing," Library Journal, LXXXVIII (October 1, 1963), 3539-43.

Bundy, Mary Lee. Public Library Processing Centers: A Report of a Nationwide Survey. Troy, New York: The Author, 1962.

Capel, Elna. "Centralized Cataloging in Georgia." (Master's thesis, University of North Carolina Library School, 1957.)

Carhart, Francis D. Southwest Missouri Library Service, Inc.: A Study in Cooperative Centralized Services. Chicago: ALA, 1962.

"Central Processing is Big Business at Westchester Library System," Library Journal, LXXXVIII (December, 1963), 4725.

"Cooperative Cataloging Center Opens in Honolulu," *Library Journal*, LXXXVIII (July, 1963), 2661.

Drennan, Harry T. "Centralized Technical Services in Idaho," *Pacific Northwest Library Association Quarterly*, XXVI (April, 1962), 150-58.

Eckford, Mary L. "Library Service Center of Eastern Ohio; An Experience in Centralized Processing," *Library Resources and Technical Services*, V (Winter, 1961), 5-33.

Egan, Mary J. "Another System Centralized!" *Library Journal*, LXXXVII (November 15, 1962), 4240-41.

Hankins, Mrs. Frank Dale and Burson, Phyllis S. "La Retama and Nuces County Report of an Experiment in Centralized Processing," *Texas Librarian*, XXIV (May, 1962), 84-86.

Hanley, Mary. *Centralized Processing, Recent Trends and Current Status: A Review and Synthesis of the Literature*. (Occasional Papers no. 71), Urbana, Illinois: Graduate School of Library Science, University of Illinois, April, 1964.

Hunt, James R. "The Historical Development of Processing Centers in the United States," *Library Resources and Technical Services*, VIII (Winter, 1964), 54-62.

Kenney, Brigitte L. *Cooperative Centralized Processing*. Chicago: ALA, 1959.

McJenkin, Virginia. "Streamlining Essential Routines," *Wilson Library Bulletin*, XXXVII (April, 1963), 680-81.

Mahoney, Orcena. "Centralized Cataloging: Developments and Problems," *Oklahoma Librarian*, VI (October, 1956), 80-81.

Mahoney, Orcena. "Centralized Processing Centers," *Library Resources and Technical Services*, V (Winter, 1961), 40-47.

Moore, Everett L. "Processing Center for California Junior College Libraries--A Preliminary Study," *Library Resources and Technical Services*, IX (Summer, 1965), 303-17.

Mullen, Evelyn. "Regional Processing for Public Libraries," Library Resources and Technical Services, V (Winter, 1961), 34-39.

Mumm, Beulah. "Centralized and Cooperative Cataloging," News Notes of California Libraries, L (April, 1955), 358-60.

Pierson, Robert M. "Centralized Cataloging: Its Implications to Personnel," Library Journal, XC (February 15, 1965), 826-28.

Pettus, Clyde. "Branch Library Cataloging in Public Libraries in the Southeast," Southeastern Librarian, VII (Summer, 1957), 41-49.

"Processing Centers: Guidelines for Study," School Libraries, XII (January, 1963), 40.

Schenck, Gretchen K. Public Library Service in Missouri. Jefferson City, Missouri: Missouri State Library, 1962.

Tauber, Maurice F. and Kingery, Robert E. The Central Technical Processing of the Nassau Library System. Hempstead, New York: Nassau Library System, 1962.

Wendel, Clara E. "Book Processing Center, Orlando, Florida: A Case Study," Library Resources and Technical Services, VIII (Winter, 1964), 71-76.

Wiese, Marion B. "Shortening Process; Centralized Cataloging and Processing Saves Time and Money," Southeastern Librarian, XI (Fall, 1961), 232-41.

LIBRARY RESEARCH CENTER
UNIVERSITY OF ILLINOIS
CATALOGING COST STUDY
TIME DATA SHEET

Library______________________________
Date_________________________________

Name____________
Position____________

Minutes	Activity	No.	Activity	No.	Activity	No.	Activity	No.	Activity	No.	Activity	No.	Activity	No.
HOUR:	8:00		9:00		10:00		11:00		1:00		2:00		3:00	
05														
--														
--														
--														
--														
10														
--														
--														
--														
--														
15														
--														
--														
--														
--														
20														
--														
--														
--														
--														
25														
--														
--														
--														
--														
30														
--														
--														
--														
--														
35														
--														
--														
--														
--														
40														
--														
--														
--														
--														
45														
--														
--														
--														
--														
50														
--														
--														
--														
--														
55														
--														
--														
--														
--														

LIBRARY RESEARCH CENTER
UNIVERSITY OF ILLINOIS
CATALOGING COST STUDY
TIME DATA SHEET

Name______________________________

Position______________________________

Activity	No.	Activity	No.	Activity	No.	Activity	No.	Activity	No.	Activity	No.
10:00		11:00		1:00		2:00		3:00		4:00	

APPENDIX B

EXPLANATION OF TIME-DATA SHEET

LIBRARY RESEARCH CENTER
UNIVERSITY OF ILLINOIS
CATALOGING COST STUDY

Explanation of Time-Data Sheet

A. Purpose

The purpose of filling out these daily logs is to keep a record of time spent on the various activities in the sphere of library work designated as "technical processes." By compiling the results from a number of these records, it is hoped that a satisfactory time/cost ratio can be assigned to the processing function.

B. Method

The staff member involved should indicate by a line or a bracket the time taken for a particular activity. From the sheet entitled "Definitions of Activities in Processing" he should select the appropriate number for that activity, and indicate the number in the "Activities" column on the Time-Data Sheet. A combination of numbers may be appropriate, as several tasks may be combined in some libraries.

The "No." column should be used to indicate the number of items handled, i.e., books cataloged, cards typed, etc., during the time indicated.

The Time-Data Sheet has been designed for a regular eight hour day, from 8 am to 12 pm and from 1 pm to 5 pm. If the schedule worked by the staff member is different, he should ignore the hour notation and regard it as the "1st hour, 2nd hour," etc., of his particular day. The lunch hour has been omitted.

Please return the sheets at the end of the week that the record is kept.

APPENDIX C

OBSERVED DATA, LIBRARY 1

Step 1--Not recorded by library staff, 20 random observations, mean of 29 seconds.

26
25
39
28
23
37
37
20
36
26
24
37
24
29
31
25
27
30
25
27

576 ÷ 20 = 28.800 or 29 sec.

Step 2--Not recorded by library staff, 20 random observations, mean average of 25 seconds.

29
17
23
53
49
21
19
23
18
17
28
23
24
21
21
26
23
23
29
21

508 ÷ 20 = 25.400 or 25 sec.

Step 3 (Activities 6, 7, 8 and 9)--17 random observations, mean of 673 seconds.

270
363
480
720
2,357
374
477
527
462
1,018
1,140
652
221
420
240
780
945

11,446 ÷ 17 = 673 sec.

Step 4 (Activity 7)--17 random observations not recorded separately by library staff, incorporated in activity 7, mean of 20 seconds.

18	22	16
32	23	19
25	18	28
15	11	15
16	16	18
31	15	338 ÷ 17 = 19.882 or 20 sec.

Step 5 (Activity 13, 14)--Typing cards, book cards and pockets, 45 random observations, mean of 370 seconds.

403	669	254
317	634	367
274	192	268
378	265	316
348	274	872
420	180	934
379	237	316
558	187	308
277	289	309
248	216	459
279	320	354
232	376	303
280	269	355
840	532	322
443	349	252
		16,654 ÷ 45 = 370.0088 or 370 sec.

Step 6 (Activity 12)--18 random observations, mean of 40 seconds.

42	32	42
37	37	42
58	35	39
38	36	34
47	36	36
48	38	35
		712 ÷ 18 = 39.5555 or 40 sec.

Step 7 (Activity 12)--Not observed randomly. A sample of 38 books took 21 minutes, or 1,260 seconds for an average of 33 seconds each. Another sample for 47 books took 24 minutes, or 1,440 seconds for an average of 31 seconds each. The time of 40 seconds obtained above was combined with the 33 seconds recorded here to total 73 seconds for the complete operation.

Step 8 (Activity 15)--Writing and applying labels, 38 random observations, writing, mean of 27 seconds--applying, mean of 19 seconds--average of 46 seconds.

24
34
29
20
42
25
28
27
26
28
29
27
28

26
27
31
22
30
31
32
20
19
20
23
25
26

24
27
27
27
20
32
28
26
30
25
24
27

1,016 ÷ 38 = 26.744 or 27 sec. (writing)

15
25
23
30
14
15
24
19
27
14
18
21
17

17
19
12
29
17
22
31
11
23
17
17
24
16

18
21
15
15
18
18
16
19
19
17
25
20

738 ÷ 38 = 19.421 or 19 sec.(applying)

Step 9 (Activity 16 and 17)--Property stamping and pasting of pockets, 27 random observations, mean of 63 seconds.

95
51
53
61
64
61
71
69
50

62
52
81
58
57
60
64
77
59

64
62
55
94
57
61
49
59
56

1,702 ÷ 27 = 63.037 or 63 sec.

Step 10 (Activity 18)--Application of plastic jackets, 48 random observations, average 65 seconds.

51	62	56	52
48	61	60	78
59	104	57	66
100	54	100	74
53	58	54	108
52	60	54	58
54	64	54	74
59	54	56	70
56	64	72	78
55	56	55	103
57	59	58	69
106	56	50	60

3,118 ÷ 48 = 64.9583 or 65 sec.

Step 11 (Activity 10)--47 random observations, average 11 seconds.

13	14	07	07
12	13	09	08
07	14	12	09
08	11	12	07
15	12	15	08
11	07	08	08
12	06	07	10
11	06	07	09
21	11	13	09
17	11	10	07
24	12	08	08
13	10	08	497 ÷ 47 = 10.574 or 11 sec.

Step 11a (Activity 10)--47 random observations, average 19 seconds.

15	24	19	16
24	23	20	18
22	29	14	20
14	19	15	19
13	18	27	18
12	17	21	15
22	29	19	16
23	31	17	17
24	17	11	31
21	16	18	27
18	15	18	17
19	18	15	911 ÷ 47 = 19.3829 or 19 sec.

APPENDIX D

OBSERVED DATA, LIBRARY 2

Step 1--21 random observations, average 84 seconds.

99
77
69
102
79
74
74
87
94
99
75
84
77
71
73
97
70
68
84
67
136

1,756 ÷ 21 = 83.6190 or 84 sec.

Step 2--Not observed.

Step 3--21 random observations, average 19 seconds.

09
41
19
21
13
24
17
09
15
16
23
10
18
16
21
24
27
16
18
10
23

390 ÷ 21 = 18.5714 or 19 sec.

Step 4--This operation could not be observed randomly as it involved two operations completed as separate steps. The dating and filing of order slips for 91 books took 31 minutes, or an average of 20 seconds per book.

Step 5--Storing of books for L.C. cards, 22 random observations, average 29 seconds.

33
27
30
36
40
43
14
13
37
31
30
46
37
29
12
51
12
17
24
30
27
24

643 ÷ 22 = 29.227 or 29 sec.

The addition of the times for the first four steps observed result in a mean total of 152 seconds for those operations which were recorded as activities 1 and 2 by the staff.

Step 6 (Activity 3)--24 random observations, mean of 76 seconds.

94	55	92
72	97	82
64	79	89
97	63	94
74	75	79
71	79	72
79	69	26
55	69	101
		1,827 ÷ 24 = 76.125 or 76 sec.

Step 7 (Activity 13)--19 random observations, mean of 222 seconds.

189	234	200
207	237	206
215	225	171
257	229	214
250	269	187
288	241	190
206		4,215 ÷ 19 = 221.84 or 222 sec.

Step 8--Not observed.

Step 9 (Activity 16)--21 random observations, mean of 50 seconds.

44	38	40
48	38	46
36	76	44
50	54	50
54	58	104
44	48	48
36	44	46
		1,046 ÷ 21 = 49.80 or 50 sec.

Step 10 (Activity 17)--25 random observations, mean of 39 seconds.

53	25	30
32	26	37
57	47	48
27	36	40
27	51	50
31	35	34
45	59	27
34	35	30
59		975 ÷ 25 = 39 sec.

Step 11 (Activity 18)--22 random observations, mean of 59 seconds.

54	45	56
53	70	49
55	85	79
44	53	108
45	52	82
43	52	55
55	59	60
50		1,304 ÷ 22 = 59.2727 or 59 sec.

APPENDIX E

OBSERVED DATA, LIBRARY 3

Step 1--Filing sets of Wilson cards in order file.
21 random observations, mean of 44 seconds.

45
32
72
35
32
32
38

39
53
62
44
45
38
44

38
64
26
36
51
50
39

915 ÷ 21 = 43.57 or 44 sec.

Filing remainder of Wilson cards in storage file.
30 random observations; mean of 13 seconds.

16
09
24
10
09
09
11
12
16
28

13
15
11
16
11
21
07
07
17
12

15
13
09
18
11
11
18
09
13
12

403 ÷ 30 = 13.43 or 13 sec.

Step 3--Not recorded.

Step 4 (Activities 4, 5)--32 random observations, mean of 198 seconds.

270
309
170
155
169
143
225
226
318
221

177
162
236
141
133
155
217
112
171
178
108

209
255
161
338
240
220
110
209
277
158
163

6,336 ÷ 32 = 198 sec.

Step 5 (Activities 6, 7 and 8)--25 random observations, mean of 288 seconds.

91
95
360
218
552
334
398
475
572

218
315
163
442
273
225
457
155

162
270
193
161
225
214
402
231

7,201 ÷ 25 = 288.04 or 288 sec.

Step 6--12 random observations, mean of 65 seconds.

62
68
58
64
60
62

63
73
50
63
85
68

776 ÷ 12 = 64.66 or 65 sec.

Step 7 (Activity 14)--27 random observations, mean of 41 seconds.

74
26
62
36
41
41
36
39
49

49
38
46
38
36
33
39
33
37

38
28
42
29
38
49
56
43
39

1,115 ÷ 27 = 41.29 or 41 sec.

Step 8 (Activity 13)--Not recorded randomly. Data based on record kept by cataloger.

Step 9 (Activity 16)--18 random observations, mean of 26 seconds.

27
29
24
21
25
24

27
23
24
22
26
24

29
23
28
39
21
23

459 ÷ 18 = 25.50 or 26 sec.

Step 10 (Activity 15)--Average time 45 seconds. Writing labels, 14 random observations, mean of 18 seconds. Measuring book--22 observations, mean of 5 seconds. Applying labels--22 random observations, mean of 22 seconds. Measuring and marking--22 books for call number labels took two minutes, or 5 seconds each.

Writing labels

21 12
18 34
15 19
11 14
17 25
27 21
11 13
258 ÷ 14 = 18.42 or 18 sec.

Application of labels, 22 random observations, mean of 22 seconds.

34 25 24
21 13 24
19 30 19
10 19 19
31 31 18
27 20 22
18 14 33
15 486 ÷ 22 = 22.09 or 22 sec.

On a random sample of 13 observations made of the use of stylus and transfer paper, an average of 41 seconds resulted. As this is done only on those few books without dust wrappers, and there was only a three-second difference in time, no consideration was given this variation in computing the time for this operation.

42 21
39 32
60 43
47 38
37 44
47 47
34 531 ÷ 13 = 40.84 or 41 sec.

Step 11 (Activity 17)--12 random observations, mean of 16 seconds.

13
15
10
12
19
20
17
19
16
15
19
22
197 ÷ 12 = 16.41 or 16 sec.

Step 11 (Activity 17)--Another series of 22 random observations, mean of 16 seconds.

13
17
21
16
16
17
15
17
15
14
18
13
16
17
17
17
17
15
19
13
16
16
355 ÷ 22 = 16.13 or 16 sec.

Step 13 (Activity 18)--23 random observations, mean of 84 seconds.

70
127
102
77
78
66
66
73
71
76
65
94
131
54
77
119
56
66
118
105
67
79
105
1,942 ÷ 23 = 84.43 or 84 sec.

APPENDIX F

OBSERVED DATA, LIBRARY 4

Step 1--Not observed randomly.

Step 2--Not observed randomly.

Step 3--Not observed randomly.

Steps 4 and 5--Not separated or observed randomly.

Step 6 (Activities 6, 7, 8 and 9)--Cataloging and classification. 19 random observations, 308 second average.

110
331
180
353
373
281
302
303
350
361

353
340
383
302
362
285
309
267
310
5,855 ÷ 19 = 308.15 or 308 sec.

Total operation, 19 random observations, 429 second average.

351
427
346
474
494
402
423
397
471
482

476
461
504
423
383
381
430
385
434
8,144 ÷ 19 = 428.63 or 429 sec.

Step 7 (Activity 4, 5)--21 random observations, mean of 128 seconds.

61	171	68
152	50	115
242	145	182
86	118	94
115	125	194
130	70	88
232	123	117
		2,678 ÷ 21 - 127.52 or 128 sec.

Step 8 (Activities 13, 14)--Book Pockets - 38 random observations, mean of 25 seconds.

20	28	26
28	30	18
25	22	26
42	23	30
20	19	27
16	23	22
21	22	18
40	27	22
29	20	28
20	31	25
26	23	17
28	21	33
25	16	938 ÷ 38 = 24.68 or 25 sec.

Book cards - 38 random observations, mean of 29 seconds.

25	32	22
27	32	29
21	28	24
31	28	26
22	28	32
26	25	27
37	28	22
25	50	26
29	23	25
32	30	52
35	32	27
22	30	30
27	21	1,087 ÷ 38 = 28.60 or 29 sec.

Combined total of 54 seconds, mean.

Activity 14--Typing of card sets, original cataloging, 23 random observations, mean of 287 seconds.

375	245	465
300	275	295
197	285	446
272	252	262
217	297	234
241	310	305
250	311	301
191	284	6,610 ÷ 23 = 287.39 or 287 sec.

Typing of card sets, Wilson cards, 23 random observations, mean of 135 seconds. (Includes cards and pockets)

90	178	180
140	140	138
82	102	135
124	135	105
170	95	152
165	151	165
155	95	125
140	144	3,106 ÷ 23 = 135.04 or 135 sec.

Step 9 (Activity 16)--53 random observations, mean of 60 seconds.

44	60	79
63	60	32
58	62	64
50	59	64
63	64	50
62	60	60
61	40	66
66	60	68
62	60	60
65	70	60
48	60	42
59	84	57
60	40	61
50	71	64
54	58	81
60	60	61
60	54	70
60	49	3,155 ÷ 53 = 59.52 or 60 sec.

Steps 10, 11 (Activities 15, 17)--53 random observations, mean of 79 seconds.

65
77
80
77
63
68
74
69
66
85
81
75
82
88
75
89
79
72
81
73
84
87
86
82
89
72
88
70
66
80
84
61
81
81
75
69
74
71
92
86
90
72
90
109
110
72
86
84
86
82
66
60
93

4,197 ÷ 53 = 79.18 or 79 sec.

Step 12 (Activity 18)--30 random observations, mean of 126 seconds.

90
82
112
135
115
131
126
140
110
130
140
110
182
95
132
152
127
140
135
128
95
142
95
141
170
121
125
124
118
126

3,769 ÷ 30 = 125.63 or 126 sec.

APPENDIX G

OBSERVED DATA, LIBRARY 5

Step 1 (Activity 1)--28 random observations, mean of 49 seconds.

50
50
59
58
40
57
50
40
42
43

45
49
47
44
56
47
44
45
50

67
52
32
58
55
54
59
50
45

1,388 ÷ 28 = 49 sec.

Step 2 (Activity 3)--9 random observations, mean of 90 seconds.

95
78
61
60
135

71
188
45
85

818 ÷ 9 = 90 sec.

Step 3 (Activities 4 and 5)--18 random observations, mean of 180 seconds.

190
124
156
294
80
106

100
74
360
103
60
143

500
176
90
184
170
338

3,248 ÷ 18 = 180 sec.

Step 4 (Activities 7 and 8)--8 random observations, mean of 672 seconds.

866
706
466
831

942
610
507
451

5,379 ÷ 8 = 672 sec.

Step 5 (Activity 9)--Typing of unit card--work slip for original cataloging, 20 random observations, mean of 165 seconds.

120	225	130
280	120	175
115	140	160
340	155	95
70	300	75
185	182	145
145	142	3,299 ÷ 20 = 165 sec.

Step 6 (Activity 13)--Typing Wilson card sets, 20 random observations, mean of 192 seconds.

215	136	160
169	168	285
168	154	145
100	316	233
111	165	184
151	127	255
345	254	3,841 ÷ 20 = 192 sec.

Step 6 (Activity 13)--Typing non-Wilson card sets, 15 random observations, mean of 262 seconds.

274	314	284
217	350	201
287	245	240
340	201	201
288	319	166
		3,927 ÷ 15 = 261.8 or 262 sec.

Step 7 (Activity 10)--Revision of card sets by cataloger, 40 random observations, average 58 seconds.

38	54	44	50
36	77	94	41
32	54	36	44
82	64	68	71
40	90	52	54
32	58	106	80
44	34	32	51
60	38	108	41
90	38	30	87
54	108	56	55
			2,321 ÷ 40 = 58 sec.

Step 8 (Activity 15)--Shellacking, spine labeling, 27 random observations, mean of 108 seconds.

122	114	76	104
76	100	74	48
68	74	72	84
219	74	44	78
221	62	74	96
210	106	76	130
180	148	190	2,920 ÷ 27 = 108 sec.

Step 9 (Activity 17)--Property stamping, 35 random observations, mean of 35 seconds.

32	31	42	26
34	60	28	30
31	44	40	34
36	62	25	27
32	26	26	23
39	40	37	39
44	43	53	30
35	35	26	31
32	33	27	1,233 ÷ 35 = 35 sec.

Step 10 (Activity 16)--Pasting of pockets, 18 random observations, mean of 60 seconds.

39	45	57
36	33	108
111	39	78
39	57	66
57	75	54
33	60	90
		1,077 ÷ 18 = 59.833 or 60 sec.

Step 11 (Activity 18)--Installation of plastic jackets, 19 random observations, mean of 59 seconds.

54	54	45
53	68	76
55	63	53
57	59	51
51	71	49
56	53	99
51		1,118 ÷ 19 = 59 sec.

APPENDIX H

QUANTIFICATION OF DETAIL ON CATALOG CARDS

Key

1. Classification	
For classification number	1 point
For author's (or biographee's) initial letter	1 point
For Cutter number or additional letters of author's (or biographee's name) including full name	1 point
2. Author entry	
For some form of name	1 point
For full name	1 point
For author's dates	1 point
3. Title	
For title	1 point
For subtitle	1 point
4. Descriptive material	
Editor statement	1 point
Translator statement	1 point
Edition statement	1 point
5. Imprint	
Place of publication	1 point

Publisher	1 point
Date of publication	1 point
6. Collation	
1. Preliminary paging	1 point
2. Textual paging	1 point
3. Illustration notes	1 point
4. Other notes	1 point each
5. Series note	1 point
7. Descriptive notes	
1. Bibliographical note	1 point
2. Contents note	1 point
3. Other notes	1 point each
8. Added entries or subject headings	1 point each

Title by Leonhardt: Fig. 3

	Processing Center	Library 1	Library 4
Classification	3	3	2
Author entry	3	3	3
Title	2	2	2
Translator statement	1	1	1
Imprint	3	2	2
Collation	1	1	2
Descriptive notes	0	1	0
Added entries	3	3	3
	16	16	15

Title by Pettigrew: Fig. 3

	Processing Center	Library 1	Library 4
Classification	3	3	2
Author entry	1	1	1
Title	1	1	1
Imprint	3	3	3
Collation	3	1	1
Descriptive notes	1	0	0
Added entries	4	3	3
	16	12	11

Title by Benedikt: Fig. 5

	Processing Center	Library 3
Classification	3	2
Author entry	2	2
Title	3	2
Descriptive material	1	0
Edition statement	1	0
Imprint	3	2
Collation	2	0
Notes	1	0
Added entries	4	2
	20	10

Title by Jones: Fig. 5

Classification	3	3
Author	3	2
Title	1	1
Editor note	1	0
Introductory note	1	0
Imprint	3	3
Collation	2	0
Added entries	4	2
	18	11

Title by Peterson: Fig. 5

	Processing Center	Library 2
Classification	3	1
Author	3	1
Title	1	1
Edition note	1	0
Imprint	3	3
Collation	2	0
Note	1	0
Added entries	3	2
	17	8

Title by Engel: Fig. 6
on Marianne Moore and comparing title by Bottorff for Library 5 because it is the same kind of book.

	Processing Center	Library 4	Library 5
Classification	3	3	2
Author	1	1	1
Title	1	1	1
Imprint	3	3	2
Collation	2	2	0
Note	1	0	0
Added entries	3	1	1
	14	11	7

Title by Hassell: Fig. 6
on Rupert Brooke

	Processing Center	Library 3	Library 4
Classification	3	3	2
Author	3	1	1
Title	2	2	2
Imprint	3	2	3
Collation	2	0	2
Added entries	3	1	1
	16	12	11

VITA

Donald Hendricks was born in Flint, Michigan, November 3, 1931. He attended Flint Junior College and the University of Michigan, where he received his A.B. degree in Political Science in 1954 and his A.M.L.S. in 1955. Subsequently he has served as a Young Adult Librarian in the Detroit Public Library, Head Librarian at the Owosso, Michigan, Public Library, Assistant Chief Librarian at the Decatur, Illinois, Public Library, and Head Librarian at Millikin University, Decatur, Illinois. While working toward his doctorate, he was employed at the Library Research Center, University of Illinois, and obtained a grant from the Cooperative Research Branch of the U. S. Office of Education to complete his study. He has served on committees and as secretary of the Illinois Library Association. He has contributed to library periodicals and served as editor of Illinois Libraries. He is married to Mary Elrich Hendricks and has two sons, Phillip and Scott.